United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
University of Georgia,
College of Agriculture,
Agricultural Experiment Stations

Soil Survey of Atkinson, Bacon, and Coffee Counties, Georgia

HOW TO USE

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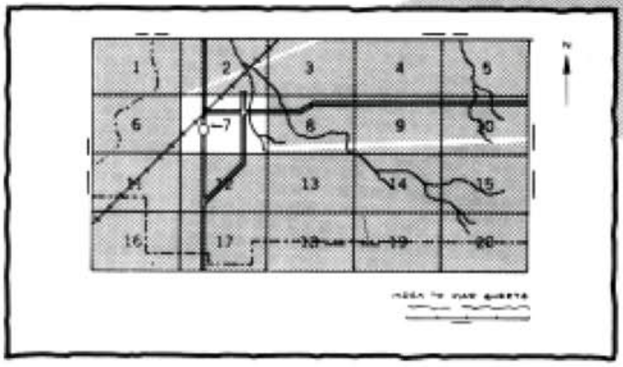

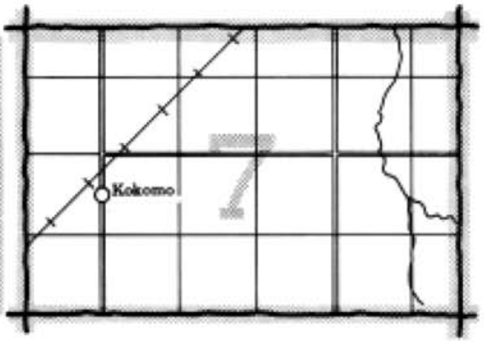

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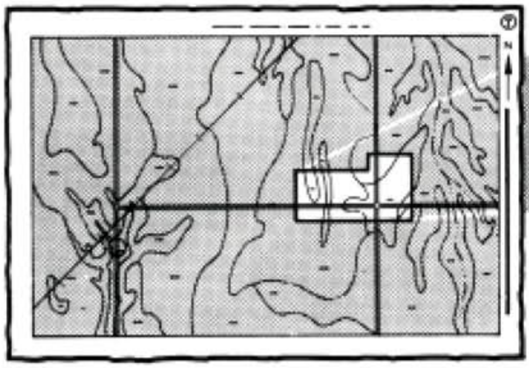

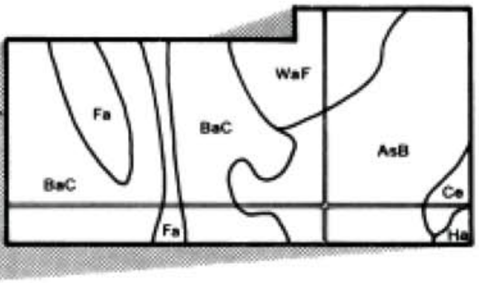

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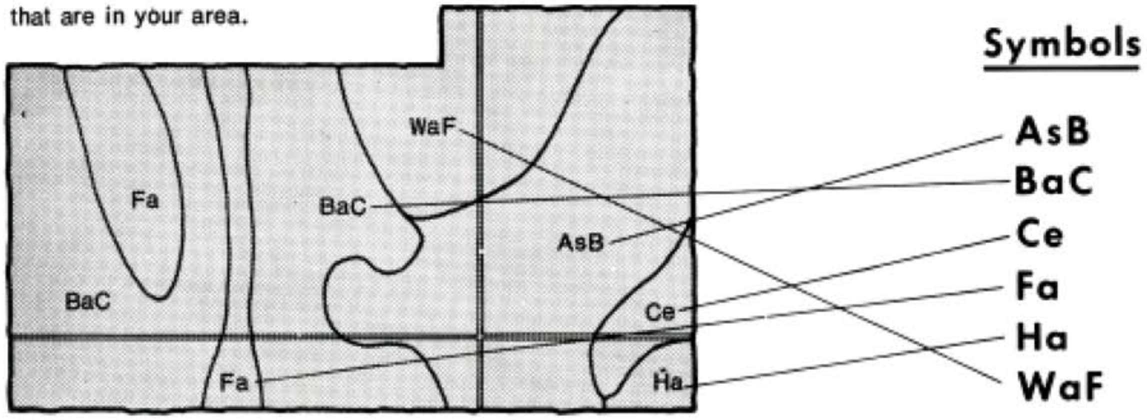
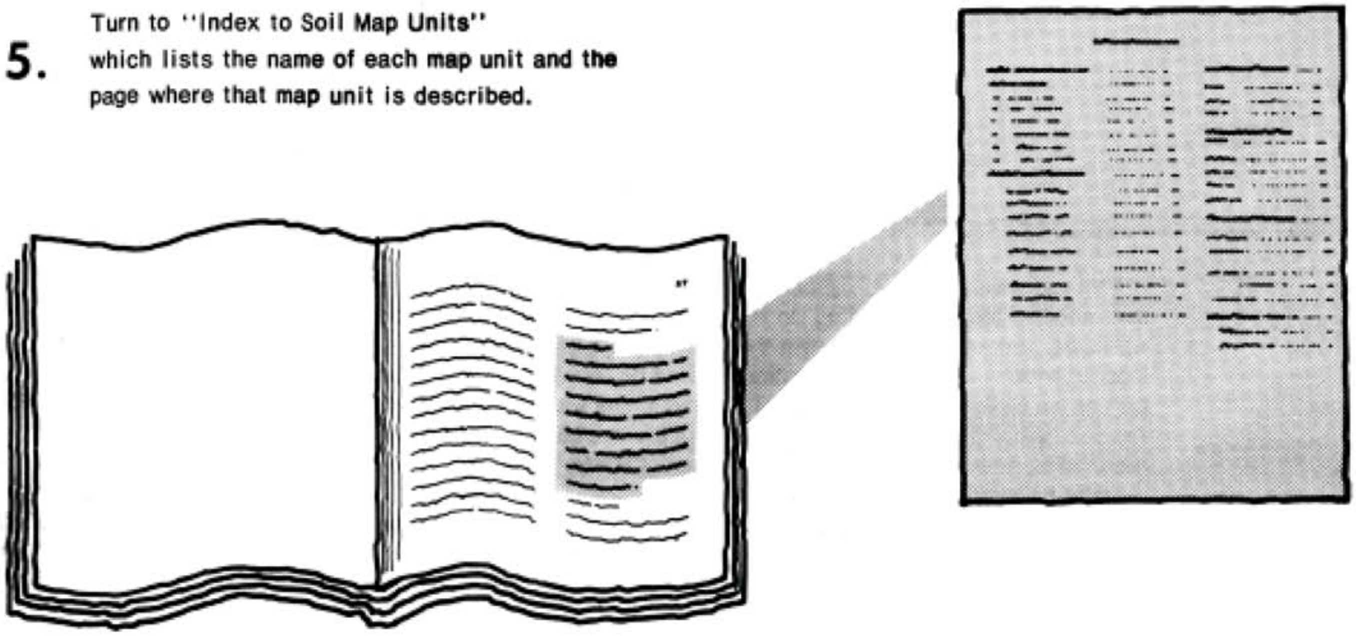
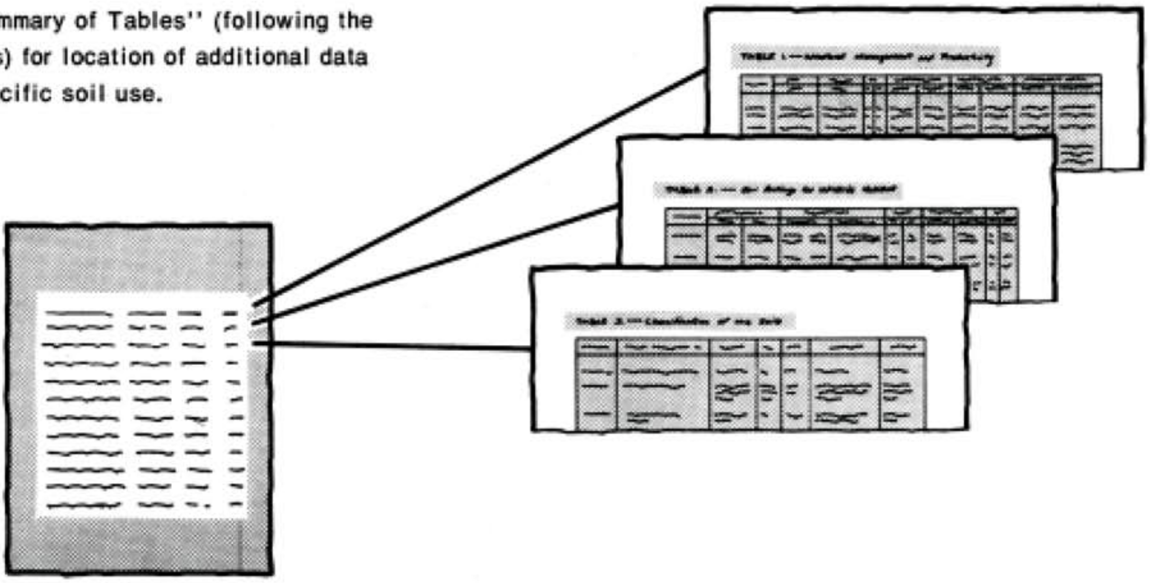


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1983. Soil names and descriptions were approved in 1983. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1983. This soil survey was made cooperatively by the Soil Conservation Service and the University of Georgia, College of Agriculture, Agricultural Experiment Stations. It is part of the technical assistance furnished to the Altamaha and Satilla River Soil and Water Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Peanuts and corn on Tifton loamy sand, 2 to 5 percent slopes. This prime farmland soil is well suited to cultivated crops. Contour farming is effective in controlling runoff and erosion.

Contents

Index to map units iv
Summary of tables v
Foreword vii
General nature of the survey area 1
How this survey was made 4
  Map unit composition 4
General soil map units 7
Detailed soil map units 21
Important farmland 43
Use and management of the soils 45
  Crops and pasture 45
  Woodland management and productivity 47
  Recreation 48
  Wildlife habitat 49
  Engineering 51
Soil properties 55
  Engineering index properties 55
  Physical and chemical properties 56
  Soil and water features 57
  Physical and mineralogical analyses of selected soils 58
  Engineering index test data 58
Classification of the soils 59
Soil series and their morphology 59
Formation of the soils 79
  Factors of soil formation 79
References 81
Glossary 83
Tables 89

Soil Series

Ailey series 59
Albany series 60
Bayboro series 61
Bibb series 61
Blanton series 62
Bonifay series 62
Cainhoy series 63
Carnegie series 63
Chastain series 64
Clarendon series 65
Cowarts series 65
Dasher series 66
Dothan series 66
Esto series 67
Fuquay series 68
Johnston series 68
Kershaw series 69
Kinston series 69
Leefield series 70
Osier series 70
Ousley series 71
Pelham series 71
Rigdon series 72
Sapelo series 72
Stilson series 73
Sunsweet series 74
Surrency series 75
Tawcaw series 75
Tifton series 76
Troup series 76
Wahee series 77
Wicksburg series 78

Issued April 1988

Index to Map Units

AeC—Ailey loamy coarse sand, 2 to 8 percent slopes ... 21
AoA—Albany sand, 0 to 2 percent slopes ... 22
Ba—Bayboro loam, ponded ... 22
BbB—Blanton sand, 0 to 8 percent slopes ... 23
BgC—Blanton fine gravelly sand, 2 to 8 percent slopes ... 23
BoC—Bonifay sand, 2 to 8 percent slopes ... 23
CbB—Cainhoy sand, 0 to 5 percent slopes ... 24
CeB2—Carnegie sandy loam, 3 to 5 percent slopes, eroded ... 24
CgC2—Carnegie-Cowarts complex, 5 to 8 percent slopes, eroded ... 25
Ch—Chastain-Tawcaw complex, frequently flooded .. 26
CnA—Clarendon loamy sand, 0 to 2 percent slopes . 27
CnB—Clarendon loamy sand, 2 to 5 percent slopes . 28
CsD2—Cowarts-Sunsweet complex, 8 to 17 percent slopes, eroded ... 28
Da—Dasher muck, ponded ... 29
DoA—Dothan loamy sand, 0 to 2 percent slopes ... 29
DoB—Dothan loamy sand, 2 to 5 percent slopes ... 29
EoB—Esto loamy sand, 2 to 5 percent slopes ... 31
EoD—Esto loamy sand, 5 to 12 percent slopes ... 32
ErD—Esto-Rock outcrop complex, 5 to 12 percent slopes ... 32
FsB—Fuquay loamy sand, 1 to 5 percent slopes ... 32
KeC—Kershaw coarse sand, 2 to 8 percent slopes... 34
KJ—Kinston and Johnston soils, frequently flooded .. 34
Le—Leefield loamy sand ... 35
Lu—Leefield-Urban land complex ... 35
OB—Osier-Bibb association, frequently flooded ... 36
Ou—Ousley loamy fine sand, occasionally flooded.... 36
Pd—Pelham sand, ponded ... 37
Pe—Pelham loamy sand, occasionally flooded ... 37
Rg—Rigdon sand ... 37
Sa—Sapelo fine sand ... 38
StA—Stilson loamy sand, 0 to 2 percent slopes ... 38
Su—Surrency loamy sand, ponded ... 38
TfA—Tifton loamy sand, 0 to 2 percent slopes ... 39
TfB—Tifton loamy sand, 2 to 5 percent slopes ... 39
TuB—Tifton-Urban land complex, 2 to 5 percent slopes ... 39
TyD—Troup-Ailey coarse sands, 8 to 17 percent slopes ... 40
Wa—Wahee fine sandy loam, frequently flooded ... 40
WcB—Wicksburg loamy sand, 2 to 5 percent slopes 41
WcC—Wicksburg loamy sand, 5 to 8 percent slopes 41

Summary of Tables

Temperature and precipitation (table 1) 90

Freeze dates in spring and fall (table 2) 91

Probability. Temperature.

Growing season (table 3) 91

Acreage and proportionate extent of the soils (table 4) 92

Atkinson County. Bacon County. Coffee County. Total—Area, Extent.

Important farmland (table 5) 93

Prime farmland. Additional farmland of statewide importance.

Land capability classes and yields per acre of crops and pasture (table 6) 95

Land Capability. Corn. Peanuts. Soybeans. Tobacco. Wheat. Improved bermudagrass.

Capability classes and subclasses (table 7) 98

Total acreage. Major management concerns.

Woodland management and productivity (table 8) 99

Ordination symbol. Management concerns. Potential productivity. Trees to plant.

Recreational development (table 9) 103

Camp areas. Picnic areas. Playgrounds. Paths and trails. Golf fairways.

Wildlife habitat (table 10) 107

Potential for habitat elements. Potential as habitat for—Openland wildlife, Woodland wildlife, Wetland wildlife.

Building site development (table 11) 110

Shallow excavations. Dwellings without basements. Dwellings with basements. Small commercial buildings. Local roads and streets. Lawns and landscaping.

Sanitary facilities (table 12) 113

Septic tank absorption fields. Sewage lagoon areas. Trench sanitary landfill. Area sanitary landfill. Daily cover for landfill.

Construction materials (table 13) 117

Roadfill. Sand. Gravel. Topsoil.

Water management (table 14) 120

Limitations for—Pond reservoir areas; Embankments, dikes, and levees. Features affecting—Drainage, Irrigation, Terraces and diversions, Grassed waterways.

Engineering index properties (table 15) 124

Depth. USDA texture. Classification—Unified, AASHTO. Fragments greater than 3 inches. Percentage passing sieve—4, 10, 40, 200. Liquid limit. Plasticity index.

Physical and chemical properties of the soils (table 16) 129

Depth. Clay. Moist bulk density. Permeability. Available water capacity. Reaction. Shrink-swell potential. Erosion factors. Organic matter.

Soil and water features (table 17)... 132

Hydrologic group. Flooding. High water table. Risk of corrosion.

Physical properties of selected soils (table 18).. 135

Depth. Horizon. Particle-size distribution.

Mineralogy of selected soils (table 19) 136

Depth. Horizon. Clay mineralogy.

Engineering index test data (table 20) 137

Classification. Grain-size distribution. Liquid limit. Plasticity index. Moisture density.

Classification of the soils (table 21)... 138

Family or higher taxonomic class.

Foreword

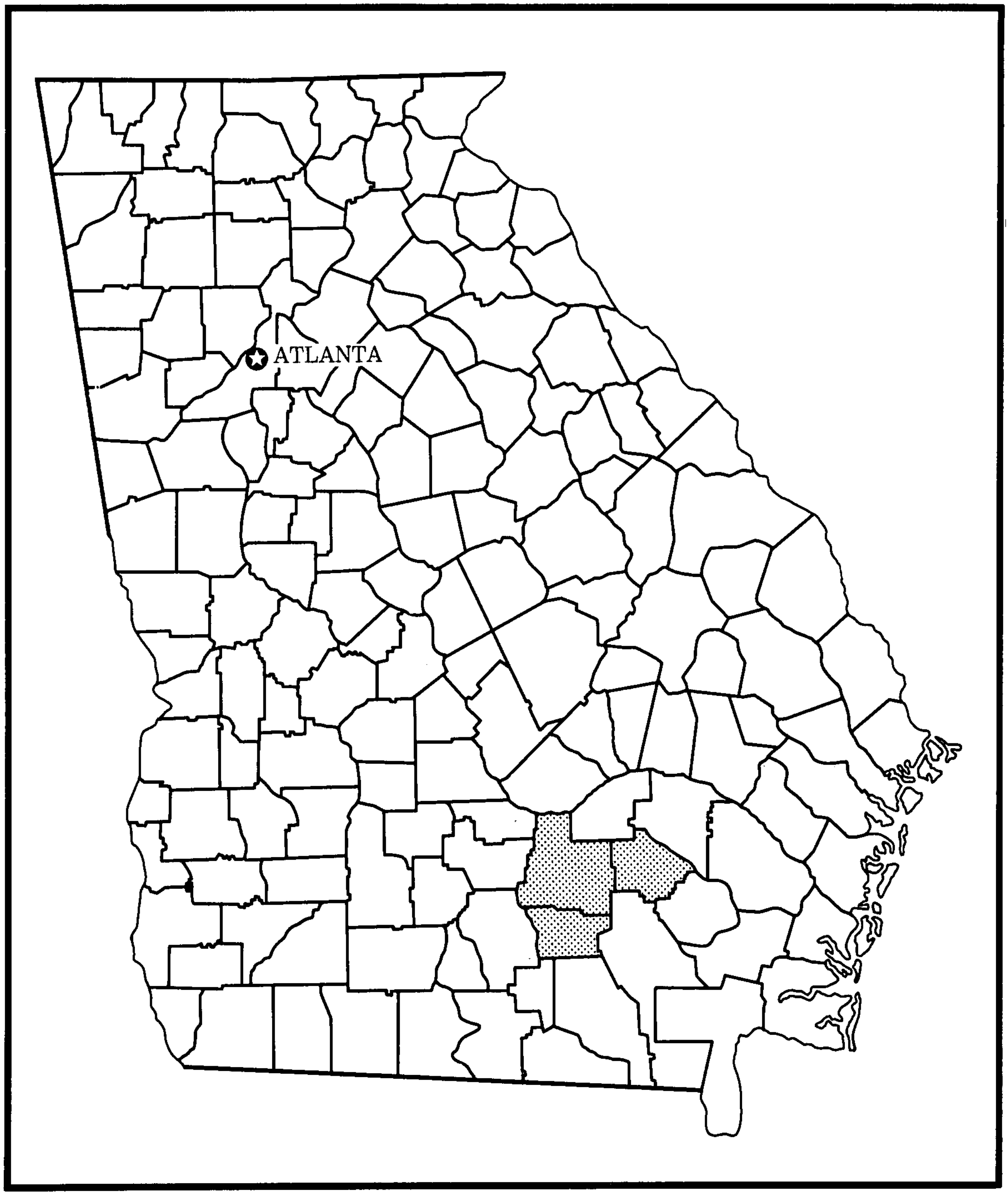
This soil survey contains information that can be used in land-planning programs in Atkinson, Bacon, and Coffee Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the suitability of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

B. Clayton Graham
State Conservationist
Soil Conservation Service



Location of Atkinson, Bacon, and Coffee Counties in Georgia.

Soil Survey of Atkinson, Bacon, and Coffee Counties, Georgia

By Thomas A. Rigdon, Soil Conservation Service
Alfred J. Green, soil scientist, Soil Conservation Service,
assisted in preparing this report

Soils surveyed by Alfred J. Green, Thomas A. Rigdon, Howard T. Stoner,
and Dan B. Bacon, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
In cooperation with
University of Georgia, College of Agriculture,
Agricultural Experiment Stations

Atkinson, Bacon, and Coffee Counties are in the southeastern part of Georgia. The land area is 1,222.4 square miles, or 782,336 acres. Atkinson County is 203,200 acres, or 317.5 square miles. Pearson is the county seat. Bacon County is 187,520 acres, or 293 square miles. Alma is the county seat. Coffee County is 391,616 acres, or 611.9 square miles. Douglas is the county seat. Elevation above sea level ranges from 320 feet at Ambrose in the northwestern part of Coffee County to 190 at Guest Millpond in Atkinson County.

Bacon County and most of Atkinson County are in the Atlantic Coast Flatwoods Major Land Resource Area; Coffee County is predominantly in the Southern Coastal Plain Major Land Resource Area.

The survey area is drained mainly by the Alapaha, Ocmulgee, and Satilla Rivers and their tributaries and Big Satilla Creek and its tributaries. The Alapaha River enters Atkinson County near Willacoochee and forms the western boundary to the south. The Ocmulgee River is the northern boundary of Coffee County. The Satilla River flows generally southeast through the southern part of Coffee County, into the northwestern part of Atkinson County and Continues to Ware County. Big Satilla Creek forms the northeastern boundary of Coffee County.

The most important resource in the survey area is soil. The soils on uplands in the southern parts of Atkinson and Bacon Counties are predominantly moderately well drained to very poorly drained and nearly level. In some places, the soils are occasionally flooded or periodically ponded from late in fall to midspring. Most of the soils have a sandy surface layer or a surface layer and thick subsurface layer that are sandy, and the subsoil is mainly loamy. However, some soils are sandy or organic throughout. The nearly level soils on flood plains in Atkinson and Bacon Counties are predominantly poorly drained and frequently flooded. Most of the soils are sandy or loamy throughout.

The soils on uplands in Coffee County and the northern parts of Atkinson and Bacon Counties are predominantly well drained and nearly level to gently sloping. Most of the soils have a sandy surface layer or a surface layer and thick subsurface layer that are sandy, and the subsoil is mainly loamy. The nearly level soils on flood plains in Coffee County are predominantly poorly drained and frequently flooded. Most of the soils are loamy or clayey throughout.

General Nature of the Survey Area

This section gives general information concerning Atkinson, Bacon, and Coffee Counties. It discusses the geology, climate, history and settlement, water resources, and farming.

Geology

William R. Fulmer, geologist, Soil Conservation Service, prepared this section.

According to the physiographic map of Georgia, Atkinson, Bacon, and Coffee Counties are in the Bacon Terrace District. Several moderately dissected terraces generally parallel the present coastline. The terrace levels are above sea level at elevations of 330 to 310 feet, 295 to 275 feet, 265 to 255 feet, 240 to 230 feet, 215 to 190 feet, and 180 to 160 feet. The lowest elevations are primarily in the southeastern parts of Atkinson and Bacon Counties. Locally, the southeast trending dendritic drainage pattern has formed on the upper Tertiary sediments. This drainage network has formed long, narrow ridges that have gently rounded to flat summits that rise gradually above the narrow flood plains. The extreme western parts of Atkinson and Coffee Counties are in the Tifton Upland Physiographic Province, and a small area of northern Coffee County is in the Vidalia Upland Physiographic Province.

The Hawthorn Formation provides surface materials for the nearly level to gently sloping soils in the headwaters of the Satilla River and Seventeen Mile Creek in the northern part of Atkinson County and the western part of Coffee County. The Hawthorn Formation consists of a series of sands and sandy clays ranging from gray to yellow. Gravel deposits, consisting chiefly of coarse angular pebbles and locally cemented sandstone, are also significant constituents in places. These constituents are referred to as the Altamaha Grit. Outcrops of the Hawthorn Formation extend over a broad area of the Southern Coastal Plain Major Land Resource Area. Locally the Hawthorn Formation is about 200 feet thick. In the eastern part of the survey area, it dips toward the southeast at a rate of 5 feet per mile under the Pleistocene deposits.

In the eastern part of Coffee County and in most of Atkinson and Bacon Counties, the soils on the uplands formed from remnants of the Hawthorn Formation and Pleistocene sands and gravels. These soils mark the highest Pleistocene terrace. An elevation above sea level of 270 feet generally is the upper limit of these materials. Generally, these materials do not exceed 10 feet in thickness. The deposits have a coastward dip of about 2 feet per mile, changing from nonmarine in the updip area to marine clays and sands in the downdip area. Valley entrenchment and erosion in the major stream systems, such as Hurricane, Hog, and Seventeen Mile Creeks, have removed these surface deposits. The underlying Hawthorn Formation is exposed and leaves the terrace materials as smooth soils between the streams. Relief in the southern part of Atkinson County is generally low. Very poorly drained and poorly drained soils are in swamps and smooth areas. In some places, in the southwestern corner of the county, the terrace deposits exceed a depth of 20 feet.

Erosion on the more sloping Hawthorn Formation in the western part of Coffee County has provided sediment for the formation of alluvial soils on the lower reaches of the Satilla River and Seventeen Mile Creek. Locally, the soils formed from this sediment are in narrow, confined flood plains of these streams.

Ground water is abundant in most of the survey area. The principal artesian aquifer consists chiefly of limestone ranging from middle Eocene to lower Miocene in age. Under the eastern parts of Atkinson and Coffee Counties and under Bacon County, the principal artesian aquifer can be penetrated by wells at an average depth of 400 to 450 feet. These wells have the potential for supplying large quantities of water. Wells in the overlying Hawthorn Formation furnish adequate water for domestic use; interlayered broad sand lenses within the Hawthorn Formation could provide a much larger supply. If thick deposits of Pleistocene sands are present, they can furnish adequate ground water.

Wells in the western parts of Atkinson and Coffee Counties are inconsistent in providing ground water. The Gulf Trough extends across the Southern Coastal Plain in a southwest/northeast direction. The principal artesian aquifer forms the base of this trough in which deep sediments of the Hawthorn Formation were deposited. The aquifer exceeds a depth of 1,000 feet in places and has a texture change in the limestone that makes it significantly less permeable. Because of the slowed permeability, only small quantities of water are supplied in many places. Recently identified faults commonly alter normal ground-water gradients and also contribute to the low ground-water yield.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

The survey area has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly afternoon thunderstorms, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Douglas, Georgia, in the period 1951 to 1980. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 49 degrees F, and the average daily minimum temperature is 37 degrees. The lowest temperature on record, which occurred at Douglas on January 31, 1966, is 6 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 91 degrees.

The highest recorded temperature, which occurred at Douglas on June 28, 1952, is 104 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 51 inches. Of this, 30 inches, or 60 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 24 inches. The heaviest 1-day rainfall during the period of record was 8.08 inches at Douglas on February 19, 1961. Thunderstorms occur on about 55 days each year, and most occur in summer.

The average seasonal snowfall is less than 1 inch. The greatest snow depth at any one time during the period of record was 3 inches. There seldom is a day with 1 inch of snow on the ground.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 70 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 9 miles per hour, in spring.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days.

Settlement and History

The survey area was once occupied by Cherokee and Seminole Indians. Settlers came mainly from the Carolinas and Virginia and the older settlements in Georgia. Settlement of the area advanced slowly until the railroads were built. Development of the lumber and turpentine industries also promoted settlement.

The counties in the survey area were formed by legislative act. Coffee County was formed from parts of Clinch, Irwin, Telfair, and Ware Counties in February 1854, and was named for General John Coffee. Bacon County was formed from parts of Appling, Pierce, and Ware Counties on July 27, 1914, and was named for Senator Augustus O. Bacon. Atkinson County was formed from parts of Clinch and Coffee Counties on August 15, 1917, and was named for William Y. Atkinson.

Atkinson County had a population of 6,200 in 1960 but decreased to 5,900 by 1970. Bacon County had a population of 8,900 in 1950 and increased to 9,400 in 1980. Coffee County had a population of 24,000 in 1950 and increased to 27,000 in 1980.

Manufacturing and business related to agriculture employ more people in the survey area than are employed on farms. Farm equipment, pulpwood, ethylnol, mobile homes, textiles, lumber, concrete products, and sheet metal are important industries.

Water Resources

The most abundant water supplies in the survey area are the Alapaha, Ocmulgee, and Satilla Rivers and Big Satilla Creek. In addition, there are many intermittent natural ponds in the survey area.

Many water courses are throughout the survey area, but in most of the smaller ones water flows only in wet seasons. Perennial streams are larger and flow through flood plain areas; these streams commonly overflow their banks during heavy rains. Many farm ponds and a few large lakes have been constructed in the watersheds of the smaller streams. These ponds and lakes are used to water livestock, irrigate crops, and for recreation.

Most of the survey area is underlain by the Ocala Limestone aquifer. Water for domestic, industrial, irrigation, and other farm uses is obtained from deep wells drilled into this aquifer. These wells range from 250 to 600 feet in depth. Free-flowing artesian wells are in the valleys of the Ocmulgee River.

Farming

Agricultural development in the survey area was slow before 1888. At that time there were only a few farms. The first crops, grown mainly for subsistence, were corn, wheat, potatoes, and vegetables. Hogs, cattle, and poultry were the main livestock. Later, as settlement became more general, cotton and cowpeas were grown, and livestock was raised extensively. With the advent of the cotton gin, the acreage in cotton rapidly increased, and it became a major cash crop.

From the late 1920's until 1969, the acreage of cotton gradually declined, and the acreage of corn, tobacco, and peanuts increased. Since 1969, the acreage of corn has decreased, and the acreage of soybeans and small grains has increased. The counties in the survey area are among those leading in the production of cattle, hogs, and poultry.

The economic depression in the early 1930's led to misuse of the land. This misuse increased erosion on most sloping soils. Many fields were abandoned because of low crop yields. Changes in land ownership were common, and soil fertility was not maintained in most places. There was a definite need to protect the soil against depletion.

The Satilla River Soil and Water Conservation District was organized in 1942, and the Altamaha District was organized in 1945. Terraces, grassed waterways, improved pastures, ponds, and drainage systems were installed on many farms to control erosion, decrease wetness, and increase productivity. The soil was used according to its capability and treated in accordance with the needs of the crop. The soil survey maps made by the Soil Conservation Service became the basis for determining the capability of each soil. Many sloping, seriously eroded areas that had been cultivated were planted to grass or trees.

In 1980, farms covered 206,074 acres, or 26 percent of the survey area. These farms produce significant amounts of soybeans, corn, tobacco, peanuts, pecans, and truck crops.

Many of the soils are well suited to sprinkler irrigation. The acreage under irrigation has increased over the past few years. Most of the irrigated land is used for corn, tobacco, soybeans, truck crops, and peanuts.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area differ in suitability for major land uses. This section describes the visual elements of landform, water, vegetation or land use, and structures of each map unit. Map units are rated according to degree of visual diversity. This is a value rating of landscape elements and their pattern within a frame of reference developed for a local geographic area. Visual diversity can be used in conservation planning and in establishing a desirable continuity of landscape elements. The extent of the map units and their component soils are identified and described. The main concerns of management are pointed out, and the soil properties that limit use are indicated. Suitability or the degree of limitation is given for the common uses.

Atkinson County

Nearly level soils on flood plains

Two map units are made up of very poorly drained and poorly drained soils on flood plains. Slope is 0 to 2 percent. The very poorly drained soils are mainly grayish and loamy throughout. The poorly drained soils have a brownish, sandy or loamy surface layer and grayish, mottled underlying layers.

1. Osier-Bibb

Poorly drained soils that are sandy or loamy

The landscape is characterized by nearly level, poorly drained soils on the flood plains of the Alapaha and Willacoochee Rivers. Generally, Bibb soils are in slack water areas, and Osier soils are nearer the stream channel. Slope is 0 to 2 percent. The drainage system is not well formed, and there is frequent flooding from late in fall to late in spring. The natural watercourses are perennial. Most areas of the soils in this map unit are in sweetgum, blackgum, cypress, bay, and water oak. Small areas are in planted pine. Other than roads and utility lines, there is little manmade development. The degree of visual diversity is low.

This map unit makes up about 1 percent of the county. It is about 40 percent Osier soils, 35 percent Bibb soils, and 25 percent soils of minor extent.

Osier soils are sandy throughout. Typically, the surface layer is predominantly dark grayish brown loamy fine sand 10 inches thick. The underlying material extends to a depth of 80 inches or more. The upper part is grayish brown loamy fine sand, and the lower part is light gray sand that has yellow mottles.

Bibb soils are loamy throughout. Typically, the surface layer is 16 inches thick. The upper part is very dark grayish brown loam, and the lower part is grayish brown fine sandy loam. The underlying material to a depth of 60 inches or more is sandy loam. The upper part is light brownish gray and has brownish yellow mottles, and the lower part is light gray.

Of minor extent in this map unit are Kinston, Johnston, and Wahee soils. Poorly drained Kinston soils and very poorly drained Johnston soils are on the flood plains with the major soils. Somewhat poorly drained Wahee soils are on nearby stream terraces.

The main concerns in management are wetness and control of flooding. The soils are moderately suited to the commonly grown pine trees. The soils are poorly suited to field crops, hay, and pasture, and they are severely limited for nonfarm uses.

2. Kinston-Johnston

Poorly drained and very poorly drained soils that are mainly loamy

The landscape is characterized by nearly level, poorly drained and very poorly drained soils mainly on the flood plains of Seventeen Mile Creek and the Satilla River. Slope is 0 to 2 percent. The drainage system is not well formed, and there is frequent flooding from midfall to late in spring. Most of the natural watercourses are perennial. Most areas of the soils in this map unit are in sweetgum, blackgum, cypress, bay, poplar, and water oak. Other than roads and utility lines, there is little manmade development. The degree of visual diversity is low.

This map unit makes up about 1 percent of the county. It is about 55 percent Kinston soils, 40 percent Johnston soils, and 5 percent soils of minor extent.

Kinston soils are poorly drained. Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is light brownish gray sandy loam, the middle part is light gray sandy clay loam, and the lower part is light gray sandy loam.

Johnston soils are very poorly drained. Typically, the surface layer is black mucky loam 36 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is dark grayish brown loamy sand, and the lower part is dark gray loamy sand.

Of minor extent in this map unit are Surrency and Osier soils. Poorly drained Osier soils and very poorly drained Surrency soils are on the flood plains with the major soils.

The main concerns in management are wetness and control of flooding. The soils are well suited to the commonly grown pine trees. The soils are poorly suited to field crops, hay, and pasture, and they are severely limited for nonfarm uses.

Predominantly nearly level soils on uplands

Four map units are made up of moderately well drained to very poorly drained soils on uplands. Slope is mainly 0 to 2 percent. The moderately well drained soils are on ridges and have a brownish, sandy surface layer and subsurface layer and a yellowish and brownish, loamy subsoil that is mottled in the lower part. The somewhat poorly drained soils are mainly in smooth areas and have a predominantly brownish, sandy surface layer and subsurface layer and a mottled, loamy subsoil. The poorly drained soils are in smooth areas or in drainageways and have a predominantly grayish, sandy surface layer and subsurface layer and a grayish, loamy subsoil that is mottled. The very poorly drained mineral soils are in depressions, are predominantly grayish throughout, and have a sandy surface layer and subsurface layer and a loamy subsoil. The very poorly drained organic soils are in depressions and have a black muck surface layer and brownish or black, underlying organic material.

3. Leefield-Pelham

Somewhat poorly drained soils in smooth areas and poorly drained soils in smooth areas and in drainageways; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized mainly by nearly level, somewhat poorly drained soils in smooth areas and nearly level, poorly drained soils in slightly lower lying, smooth areas and in drainageways. Slope is 0 to 2 percent. Most of this map unit is near and parallel to U.S. Highway 82; some areas are between the Satilla River and Seventeen Mile Creek. Some of the soils in smooth areas and in drainageways are occasionally flooded from winter to midspring. Streams throughout the map unit are mainly intermittent. Most areas of these soils are in woodland; however, some large, smooth areas are farmed. Roads, utility lines, fences, and farmsteads are common. The degree of visual diversity is moderate.

This map unit makes up about 38 percent of the county. It is about 45 percent Leefield soils, 20 percent Pelham soils, and 35 percent soils of minor extent.

Leefield soils are somewhat poorly drained. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is sand to a depth of 26 inches. It is pale yellow and has brownish yellow mottles and light gray sand grains. The subsoil is predominantly sandy clay loam to a depth of 62 inches or more. The upper part is yellow and has yellowish brown and light gray mottles, the middle part is pale yellow and has light gray and yellowish brown mottles, and the lower part is reticulately mottled light gray, yellowish brown, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 32 inches.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray and has yellowish brown mottles. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

Of minor extent in this map unit are Bayboro, Clarendon, Fuquay, Johnston, Kinston, Rigdon, and Stilson soils. Very poorly drained Bayboro soils are in depressions in the slightly higher lying, smooth areas. Very poorly drained Johnston soils and poorly drained Kinston soils are on the flood plains. Somewhat poorly drained Rigdon soils and moderately well drained Clarendon and Stilson soils generally are in the slightly higher lying, smooth or undulating areas. Well drained Fuquay soils are on the ridgetops.

The main concerns in management are wetness and flooding. Because of wetness, the soils in the smooth areas are only moderately suited to most uses. The soils in the slightly lower lying, smooth areas and in drainageways are poorly suited to field crops, hay, and pasture because of wetness or flooding. However, they are well suited to the commonly grown pine trees. Areas subject to flooding are severely limited for nonfarm uses.

4. Sapelo-Surrency-Pelham

Poorly drained soils in smooth areas and in drainageways and very poorly drained soils in depressions; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level, poorly drained soils in smooth areas and in drainageways and nearly level, very poorly drained soils in depressions. Slope is 0 to 2 percent. This map unit is in the southern part of the county. Soils in the depressions are seasonally ponded generally from late in fall to midspring. Some of the soils in smooth areas and in drainageways are flooded from winter to midspring. Streams throughout the survey area are mainly intermittent. Most areas of these soils are in woodland; however, some small, smooth areas are farmed. Roads, utility lines, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 23 percent of the county. It is about 40 percent Sapelo soils, 38 percent Surrency soils, 12 percent Pelham soils, and 10 percent soils of minor extent.

Sapelo soils are in smooth areas and are poorly drained. Typically, the surface layer is very dark gray sand 4 inches thick. The subsurface layer is light gray sand to a depth of 11 inches. This is underlain, to a depth of 20 inches, by a weakly cemented sand layer that is mainly dark brown. Below, to a depth of 50 inches, is pale brown fine sand that has strong brown mottles. The subsoil to a depth of 70 inches or more is light gray sandy clay loam that has yellowish brown and red mottles.

Surrency soils are in depressions and are very poorly drained. Typically, the surface layer is 13 inches thick. The upper part is black loamy sand, and the lower part is very dark gray sand. The subsurface layer is light brownish gray sand to a depth of 36 inches. The subsoil is mainly sandy clay loam to a depth of 62 inches or more. It is light brownish gray and has yellowish brown and gray mottles.

Pelham soils are in smooth areas and in drainageways and are poorly drained. Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray and has yellowish brown mottles. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

Of minor extent in this map unit are Albany, Bayboro, Leefield, and Rigdon soils. Very poorly drained Bayboro soils are in depressions in smooth areas. Somewhat poorly drained Albany, Leefield, and Rigdon soils generally are in slightly higher lying, smooth areas.

The main concerns in management are wetness or ponding and flooding. Most of the soils in smooth areas are poorly suited to field crops, hay, and pasture, and to nonfarm uses because of wetness. They are moderately suited to the commonly grown pine trees. Those soils mainly in drainageways and depressions are periodically covered with water. They are poorly suited to field crops, hay, and pasture and severely limited for nonfarm uses.

5. Dasher

Very poorly drained, organic soils in depressions

The landscape is characterized by nearly level soils in depressions. Slope is less than 1 percent. Most of this map unit is in the southwestern part of the county. These soils are ponded most of the year. They are mainly in baldcypress and water tupelo and have a ground cover of sawgrass and other aquatic plants. There is little manmade development. The degree of visual diversity is low.

This map unit makes up about 4 percent of the county. It is about 90 percent Dasher soils and 10 percent soils of minor extent.

Typically, the surface layer is black muck 8 inches thick. The underlying organic material extends to a depth of 70 inches or more. The upper part is dark reddish brown, and the lower part is black.

Of minor extent in this map unit are Bayboro and Surrency soils. These very poorly drained soils are in depressions at the outer edge of the delineations and separate the Dasher soils from the nearby higher lying mineral soils.

The main concern in management is ponding. These soils are poorly suited to field crops, hay, pasture, and the commonly grown pine trees. They are severely limited for nonfarm uses.

6. Albany-Blanton-Surrency

Somewhat poorly drained soils in smooth areas, moderately well drained soils mainly on ridges, and very poorly drained soils in depressions; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level, somewhat poorly drained soils in smooth areas; nearly level to gently sloping, moderately well drained soils mainly on ridges; and nearly level, very poorly drained soils in depressions. Slope is 0 to 8 percent. Most of this map unit is in the southwestern part of the county. Soils in the depressions are ponded from late in fall to mid spring. Streams throughout the map unit are mainly intermittent. Most areas of these soils are in woodland; however, some smooth areas and ridgetops are farmed. Roads, utility lines, fences, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 8 percent of the county. It is about 50 percent Albany soils, 21 percent Blanton soils, 20 percent Surrency soils, and 9 percent soils of minor extent.

Albany soils are somewhat poorly drained. Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 48 inches. The upper part is light yellowish brown and has brownish yellow mottles, and the lower part is pale yellow and has light gray and brownish yellow mottles. The subsoil extends to a depth of 70 inches or more. The upper part is brownish yellow sandy loam that has light gray and strong brown mottles, and the lower part is light gray sandy clay loam that has yellowish brown, strong brown, and dark red mottles.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown sand 8 inches thick. The subsurface layer is sand to a depth of 65 inches. The upper part is light yellowish brown, the middle part is very pale brown, and the lower part is white and has brownish yellow mottles. The subsoil extends to a depth of 90 inches or more. The upper part is brownish yellow sandy loam and has strong brown mottles, and the lower part is very pale brown sandy loam and has light gray, brownish yellow, and yellowish red mottles.

Surrency soils are very poorly drained. Typically, the surface layer is 13 inches thick. The upper part is black loamy sand, and the lower part is very dark gray sand. The subsurface layer is light brownish gray sand to a depth of 36 inches. The subsoil is mainly sandy clay loam to a depth of 62 inches or more. It is light brownish gray and has yellowish brown and gray mottles.

Of minor extent in this map unit are Cainhoy and Sapelo soils. Somewhat excessively drained Cainhoy soils are on the ridges. Poorly drained Sapelo soils are in smooth areas.

The main concerns in management are wetness or ponding and the low available water capacity. The soils in the smooth areas are poorly suited to most uses because of wetness. However, they are moderately suited to hay and pasture and well suited to the commonly grown pine trees. The soils on ridges are poorly suited to field crops, hay, and pasture because of low available water capacity; they are moderately suited to the commonly grown pine trees. They are well suited to most nonfarm uses. The soils in depressions are seasonally ponded. They are poorly suited to field crops, hay, pasture, and the commonly grown pine trees. In addition, they are severely limited for nonfarm uses.

Nearly level to gently sloping soils on uplands

Two map units are made up of excessively drained to moderately well drained soils on uplands. Slope is 0 to 8 percent. The excessively drained soils on ridges are mainly brownish and sandy throughout. The well drained soils on ridgetops and hillsides have a brownish, predominantly sandy surface layer and a brownish, predominantly sandy clay loam subsoil that is mottled in the middle and lower parts. Content of plinthite is 5 percent or more in much of the subsoil. Nodules of ironstone are on the surface and throughout much of the soil. The moderately well drained soils on ridges have a brownish, sandy surface layer and subsurface layer and a yellowish and brownish, sandy loam subsoil that is mottled.

7. Kershaw-Blanton

Excessively drained and moderately well drained soils mainly on ridges; these soils are sandy throughout or they have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by soils on ridges that are excessively drained and very gently sloping and gently sloping or that are moderately well drained and nearly level to gently sloping. Slope is 0 to 8 percent. This map unit parallels and lies in a narrow band northeast of the Satilla River and Seventeen Mile Creek. A few intermittent streams are in the survey area. Most areas of these soils are in woodland, but a few small areas are farmed. Roads, utility lines, fences, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 7 percent of the county. It is about 50 percent Kershaw soils, 12 percent Blanton soils, and 38 percent soils of minor extent.

Kershaw soils are excessively drained. Typically, the soil is coarse sand throughout. The surface layer is dark grayish brown 3 inches thick. The underlying material extends to a depth of 90 inches or more. The upper part is light yellowish brown and has brown mottles, the middle part is brownish yellow, and the lower part is very pale brown and has brownish yellow mottles.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown sand 8 inches thick. The subsurface layer is sand to a depth of 65 inches. The upper part is light yellowish brown, the middle part is very pale brown, and the lower part is white and has brownish yellow mottles. The subsoil extends to a depth of 90 inches or more. The upper part is brownish yellow sandy loam and has strong brown mottles, and the lower part is very pale brown sandy loam and has light gray, brownish yellow, and yellowish red mottles.

Of minor extent in this map unit are Cainhoy and Sapelo soils. Somewhat excessively drained Cainhoy soils are on ridges with the excessively drained soils. Poorly drained Sapelo soils are in the lower lying, smooth areas.

The main concern in management is low available water capacity. The soils are poorly suited to field crops, hay, and pasture because of this limitation. The soils are poorly suited to the commonly grown pine trees (fig. 1). They are well suited to most nonfarm uses.

8. Fuquay-Tifton-Carnegie

Well drained soils on ridgetops and hillsides; these soils have mainly a sandy surface layer or a sandy surface

Figure 1.—A stand of eighteen-year-old sand pine in an area of Kershaw soil in the Kershaw-Blanton general soil map unit. This coarse sand soil has low available water capacity.

layer and subsurface layer and a loamy or clayey subsoil

The landscape is characterized by nearly level to gently sloping, well drained soils on ridgetops and hillsides. Slope is 0 to 8 percent. Most of this map unit is several miles north and east of West Green. Excess surface water drains into a system of intermittent and perennial streams. Open water areas are common. Most areas of these soils are used for farming; however, some areas are in woodland. Roads, utility lines, fences, and farmsteads are common. The degree of visual diversity is moderate.

This map unit makes up about 18 percent of the county. It is about 42 percent Fuquay soils, 25 percent Tifton soils, 10 percent Carnegie soils, and 23 percent soils of minor extent.

Fuquay soils have a sandy surface layer and subsurface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is brownish yellow loamy sand to a depth of 32 inches. The subsoil is predominantly sandy clay loam to a depth of 80 inches or more. The upper part is mainly yellowish brown, the middle part is yellowish brown and has strong brown mottles, and the lower part is yellowish brown and has strong brown, red, and light gray mottles. Content of plinthite is 5 percent or more below a depth of 40 inches. Nodules of ironstone are throughout most of the subsoil.

Tifton soils have a sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is predominantly sandy clay loam, and the lower part is sandy clay. The upper part is yellowish brown, the middle part is yellowish brown and brownish yellow and has mainly strong brown and light yellowish brown mottles, and the lower part is mottled yellowish brown, red, and light gray. Content of plinthite is 5 percent or more below a depth of about 35 inches. Nodules of ironstone are on the surface and in the surface layer and the upper part of the subsoil.

Carnegie soils have a loamy surface layer and a clayey subsoil. Typically, the surface layer is dark grayish brown sandy loam 7 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is yellowish brown sandy clay loam, the middle part is yellowish brown sandy clay and has red and strong brown mottles, and the lower part is mottled strong brown, red, yellowish red, and yellowish brown clay. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Content of plinthite is 5 percent or more below a depth of 18 inches.

Of minor extent in this map unit are Ailey, Bonifay, Clarendon, Cowarts, Leefield, and Stilson soils. Well drained Ailey, Bonifay, and Cowarts soils are on the ridgetops or hillsides with the major soils. Moderately well drained Clarendon and Stilson soils and somewhat poorly drained Leefield soils generally are in lower lying, smooth areas.

The main concerns in management are the low available water capacity on soils that have a sandy surface layer and subsurface layer and erosion on the very gently sloping and gently sloping soils. The soils in this map unit are well suited to most uses.

Bacon County

Nearly level soils on flood plains

One map unit is made up of very poorly drained and poorly drained, loamy soils on flood plains. Slope is 0 to 2 percent. The very poorly drained soils are mainly grayish. The poorly drained soils have a brownish surface layer and mainly grayish underlying layers.

1. Kinston-Johnston

Poorly drained and very poorly drained soils that are mainly loamy

The landscape is characterized by nearly level, poorly drained and very poorly drained soils on the flood plains of the Big Satilla, Hurricane, and Little Hurricane Creeks. Slope is 0 to 2 percent. The drainage system is not well formed, and there is frequent flooding from midfall to late in spring. Most of the natural watercourses are perennial. Most areas of the soils in this map unit are in sweetgum, blackgum, cypress, bay, poplar, and water oak. Other than roads and utility lines, there is little manmade development. The degree of visual diversity is low.

This map unit makes up about 7 percent of the county. It is about 55 percent Kinston soils, 40 percent Johnston soils, and 5 percent soils of minor extent.

Kinston soils are poorly drained. Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is light brownish gray sandy loam, the middle part is light gray sandy clay loam, and the lower part is light gray sandy loam.

Johnston soils are very poorly drained. Typically, the surface layer is black mucky loam 36 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is dark grayish brown loamy sand, and the lower part is dark gray loamy sand.

Of minor extent in this map unit are Surrency and Osier soils. Poorly drained Osier soils and very poorly drained Surrency soils are on the flood plains with the major soils.

The main concerns in management are wetness and control of flooding. However, the soils are well suited to the commonly grown pine trees. The soils are poorly suited to field crops, hay, and pasture. They are severely limited for nonfarm uses.

Nearly level soils on uplands

Two map units are made up of moderately well drained to poorly drained soils on uplands. Slope is 0 to 2 percent. The moderately well drained soils and somewhat poorly drained soils are in smooth areas and have a predominantly brownish surface layer and yellowish subsurface layer that are sandy and a loamy subsoil that is mainly yellowish in the upper part and mottled in the lower part. In places, there is a thin, organically stained layer just below the surface layer. The poorly drained soils are in smooth areas or in drainageways and have a predominantly grayish, sandy surface layer and subsurface layer and a grayish, loamy subsoil that is mottled.

2. Pelham-Rigdon-Sapelo

Poorly drained soils in smooth areas and in drainageways and somewhat poorly drained soils in smooth areas; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level, poorly drained soils in smooth areas and in drainageways and nearly level, somewhat poorly drained soils in slightly higher lying, smooth areas. Slope is 0 to 2 percent.

Much of this map unit is parallel to and between Big Satilla, Hurricane, and Little Hurricane Creeks. Soils in drainageways and some of those in smooth areas are occasionally flooded from winter to midspring. Streams throughout the survey area are mainly intermittent. Most areas of these soils are in woodland; however, some small areas are farmed. Roads, utility lines, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 27 percent of the county. It is about 60 percent Pelham soils, 25 percent Rigdon soils, 10 percent Sapelo soils, and 5 percent soils of minor extent.

Pelham soils are in smooth areas and in drainageways and are poorly drained. Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray and has yellowish brown mottles. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

Rigdon soils are in the slightly higher lying, smooth areas and are somewhat poorly drained. Typically, the surface layer is predominantly very dark gray sand 7 inches thick. It is underlain by an organically stained layer to a depth of 11 inches. This layer is mottled dark brown and dark reddish brown sand. Below, to a depth of 38 inches, is predominantly pale yellow sand that has mainly strong brown, yellowish brown, and light gray mottles. The subsoil is sandy loam to a depth of 80 inches or more. It is light gray and has mainly yellowish brown, pale yellow, brownish yellow, and strong brown mottles.

Sapelo soils are in smooth areas and are poorly drained. Typically, the surface layer is very dark gray sand 4 inches thick. The subsurface layer is light gray sand to a depth of 11 inches. This is underlain, to a depth of 20 inches, by a weakly cemented sand layer that is mainly dark brown. Below that, to a depth of 50 inches, is pale brown fine sand that has strong brown mottles. The subsoil to a depth of 70 inches or more is light gray sandy clay loam that has yellowish brown and red mottles.

Of minor extent in this map unit are Albany, Bayboro, Leefield, and Surrency soils. Somewhat poorly drained Albany and Leefield soils generally are in the slightly higher lying, smooth areas. Very poorly drained Bayboro and Surrency soils are in depressions in the smooth areas.

The main concerns in management are wetness and flooding. The soils in smooth areas and in drainageways are poorly suited to field crops, hay, and pasture because of wetness or flooding. The soils are well suited to the commonly grown pine trees. Areas subject to flooding are severely limited for nonfarm uses. Because of wetness, the soils in the slightly higher lying, smooth areas are only moderately suited to most uses. They are well suited to the commonly grown pine trees.

3. Leefield-Pelham-Stilson

Somewhat poorly drained and moderately well drained soils in smooth areas and poorly drained soils in smooth areas and in drainageways; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level, somewhat poorly drained and moderately well drained soils in smooth areas and nearly level, poorly drained soils in slightly lower lying, smooth areas and in drainageways. Slope is 0 to 2 percent. Most of this map unit is south of Hurricane and Little Hurricane Creeks. Some of the soils in smooth areas and in drainageways are occasionally flooded from winter to midspring. Streams throughout the survey area are mainly intermittent. Most areas of these soils are in woodland; however, some large, smooth areas are farmed. Roads, utility lines, fences, and farmsteads are common. The degree of visual diversity is moderate.

This map unit makes up about 41 percent of the county. It is about 45 percent Leefield soils, 20 percent Pelham soils, 8 percent Stilson soils, and 27 percent soils of minor extent.

Leefield soils are somewhat poorly drained. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is sand to a depth of 26 inches. It is pale yellow and has brownish yellow mottles and light gray sand grains. The subsoil is predominantly sandy clay loam to a depth of 62 inches or more. The upper part is yellow and has yellowish brown and light gray mottles, the middle part is pale yellow and has light gray and yellowish brown mottles, and the lower part is reticulately mottled light gray, yellowish brown, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 32 inches.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray and has yellowish brown mottles. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

Stilson soils are moderately well drained. Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsurface layer is pale yellow loamy sand to a depth of 24 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. The upper part is predominantly brownish yellow; the middle part is yellow and has light gray, yellowish brown, and yellowish red mottles; and the lower part is mottled light gray, yellowish brown, yellowish red, and yellow. Content of plinthite is 5 percent or more below a depth of 38 inches.

Of minor extent in this map unit are Albany, Bayboro, Clarendon, Fuquay, Johnston, Kinston, Rigdon, and Surrency soils. Well drained Fuquay soils generally are on the higher lying ridgetops. Somewhat poorly drained Albany and Rigdon soils and moderately well drained Clarendon soils are in the smooth or undulating areas. Very poorly drained Bayboro and Surrency soils are in depressions. Very poorly drained Johnston soils and poorly drained Kinston soils are on the flood plains.

The main concerns in management are wetness and flooding. Because of wetness, the soils in the smooth areas are only moderately suited to most uses. The soils in the slightly lower lying, smooth areas and in drainageways are poorly suited to field crops, hay, and pasture because of wetness or flooding. They are well suited to the commonly grown pine trees. Areas subject to flooding are severely limited for nonfarm uses.

Nearly level to gently sloping soils on uplands

Three map units are made up of excessively drained to moderately well drained soils on uplands. Slope is 0 to 8 percent. The excessively drained soils on ridges are mainly brownish and sandy throughout. The well drained soils on ridgetops or hillsides have a brownish, sandy or loamy surface layer and a brownish or yellowish, loamy or clayey subsoil that is mottled in the middle or lower parts; generally, there is a yellowish, sandy subsurface layer. Content of plinthite is 5 percent or more in much of the subsoil. Nodules of ironstone commonly are on the surface and throughout much of the soil. In places, the subsoil is firm, brittle, and hard. The moderately well drained soils on ridges have a brownish, sandy surface layer and a brownish and yellowish subsoil that is mottled.

4. Fuquay-Clarendon-Tifton

Well drained soils on ridgetops and moderately well drained soils in smooth and undulating areas; these soils have a sandy surface layer or a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level and very gently sloping, well drained soils on ridgetops and nearly level, moderately well drained soils in lower lying, smooth and undulating areas. Slope is 0 to 5 percent. Some of this map unit is parallel to and a short distance south of Big Satilla Creek. The rest of this map unit is parallel to and a short distance both south and north of Hurricane Creek. Excess surface water drains into a system of intermittent and perennial streams. Open water areas are common. Most areas of these soils are used for farming; however, some areas are in woodland. Roads, utility lines, fences, and farmsteads are common. The degree of visual diversity is moderate.

This map unit makes up about 20 percent of the county. It is about 54 percent Fuquay soils, 22 percent Clarendon soils, 15 percent Tifton soils, and 9 percent soils of minor extent.

Fuquay soils are well drained and have a sandy surface layer and subsurface layer. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is brownish yellow loamy sand to a depth of 32 inches. The subsoil is predominantly sandy clay loam to a depth of 80 inches or more. The upper part is mainly yellowish brown, the middle part is yellowish brown and has strong brown mottles, and the lower part is yellowish brown and has strong brown, red, and light gray mottles. Content of plinthite is 5 percent or more below a depth of 40 inches. Nodules of ironstone are throughout most of the subsoil.

Clarendon soils are moderately well drained. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. The upper few inches are light yellowish brown; the middle part is brownish yellow and has reddish yellow, strong brown, and light gray mottles; and the lower part is mottled strong brown, light gray, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 26 inches. Nodules of ironstone are throughout the soil.

Tifton soils are well drained and have a sandy surface layer. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is predominantly sandy clay loam, and the lower part is sandy clay. The upper part is yellowish brown, the middle part is yellowish brown and brownish yellow and has mainly strong brown and light yellowish brown mottles, and the lower part is mottled yellowish brown, red, and light gray. Content of plinthite is 5 percent or more below a depth of about 35 inches. Nodules of ironstone are on the surface, in the surface layer, and in the upper part of the subsoil.

Of minor extent in this map unit are Bonifay, Carnegie, Cowarts, Dothan, Stilson, and Sunsweet soils. All of these soils except Stilson are well drained and are on ridgetops or hillsides. Moderately well drained Stilson soils generally are in the lower lying, smooth areas.

The main concerns in management are low available water capacity for soils on ridgetops that have a sandy surface layer and subsurface layer, wetness for soils in the lower lying, smooth areas, and erosion for the areas that are very gently sloping. The soils in this map unit are moderately suited to most farm uses, and they are well suited to most nonfarm uses.

5. Kershaw

Excessively drained soils on ridges; these soils are sandy throughout

The landscape is characterized by very gently sloping and gently sloping, excessively drained soils on ridges. Slope is 2 to 8 percent. This map unit is parallel to and mainly northeast of Hurricane Creek. A few intermittent streams are in the survey area. Most areas of these soils are in woodland, but a few small areas are farmed. Roads, utility lines, fences, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 2 percent of the county. It is about 96 percent Kershaw soils and 4 percent soils of minor extent.

Typically, Kershaw soils are coarse sand throughout. The surface layer is dark grayish brown 3 inches thick. The underlying material extends to a depth of 90 inches or more. The upper part is light yellowish brown and has brown mottles, the middle part is brownish yellow, and the lower part is very pale brown and has brownish yellow mottles.

Of minor extent in this map unit are Blanton, Cainhoy, and Sapelo soils. Moderately well drained Blanton soils and excessively drained Cainhoy soils are on the ridges. Poorly drained Sapelo soils are in the lower lying, smooth areas.

The main concern in management is low available water capacity. These soils are poorly suited to field crops, hay, pasture, and the commonly grown pine trees because of this limitation. They are well suited to most nonfarm uses.

6. Carnegie-Ailey-Bonifay

Well drained soils on ridgetops and hillsides; these soils have a loamy surface layer and a clayey subsoil or a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by very gently sloping and gently sloping, well drained soils on ridgetops and hillsides. Slope is 2 to 8 percent. Most of this map unit is parallel to and southwest of Big Satilla and Hurricane Creeks. Excess surface water drains into a system of intermittent and perennial streams. Open water areas are few. Most areas of these soils are in woodland; however, a few small areas are farmed. Roads, utility lines, fences, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 3 percent of the county. It is about 60 percent Carnegie soils, 20 percent Ailey soils, 15 percent Bonifay soils, and 5 percent soils of minor extent.

Carnegie soils have a loamy surface layer and a clayey subsoil. Typically, the surface layer is dark grayish brown sandy loam 7 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is yellowish brown sandy clay loam, the middle part is yellowish brown sandy clay that has red and strong brown mottles, and the lower part is mottled strong brown, red, yellowish red, and yellowish brown clay. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Content of plinthite is 5 percent or more below a depth of 18 inches.

Ailey soils have a sandy surface layer and subsurface layer and a loamy subsoil that is brittle and hard in the lower part. Typically, the surface layer is dark grayish brown loamy coarse sand 6 inches thick. The subsurface layer is light yellowish brown loamy coarse sand to a depth of 28 inches. The subsoil is predominantly sandy clay loam to a depth of 44 inches. It is firm, brittle, and slightly hard or hard below a depth of 36 inches. The upper part is brownish yellow, the middle part is brownish yellow and has strong brown and red mottles, and the lower part is yellowish brown and has strong brown, red, and gray mottles. The underlying material extends to a depth of 70 inches or more. It is mottled brownish yellow, red, and light gray sandy clay loam and coarse sandy loam. This material is hard if dry and firm if moist.

Bonifay soils have a sandy surface layer and subsurface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 50 inches. The upper part is yellow, the middle part is light yellowish brown and has brownish yellow mottles, and the lower part is brownish yellow. The subsoil extends to a depth of 108 inches or more. The upper few inches are brownish yellow sandy loam that has yellowish red mottles, and the rest of the subsoil is brownish yellow sandy clay loam that has yellowish, brownish, grayish, and reddish mottles. Content of plinthite is 5 percent or more below a depth of 56 inches.

Of minor extent in this map unit are Cowarts, Dothan, Kinston, Johnston, and Troup soils. Well drained Cowarts, Dothan, and Troup soils are on ridgetops or hillsides. Poorly drained Kinston soils and very poorly drained Johnston soils are on flood plains.

The main concerns in management are controlling further erosion on the eroded areas and increasing available water capacity on the other areas in the map unit. The soils in this map unit are moderately suited to most farm uses; however, they are well suited to most nonfarm uses.

Coffee County

Nearly level soils on flood plains

Two map units are made up of very poorly drained to somewhat poorly drained soils on flood plains. Slope is 0 to 2 percent. The very poorly drained soils are mainly grayish and loamy throughout. The poorly drained soils have a brownish, loamy or clayey surface layer and grayish, mottled underlying layers. The somewhat poorly drained soils are loamy throughout and have a brownish surface layer and a subsoil that is brownish in the upper part and mainly grayish and mottled in the lower part.

1. Chastain-Tawcaw

Poorly drained and somewhat poorly drained soils that are clayey or loamy throughout

The landscape is characterized by nearly level soils mainly on the flood plain of the winding Ocmulgee River. The poorly drained Chastain soils generally are in sloughs and on the lower lying flood plain, and the somewhat poorly drained Tawcaw soils are on the slightly higher lying flood plain. Slope is 0 to 2 percent. The drainage system is not well formed, and there is frequent flooding from late in fall to late in spring. Most of the natural watercourses are perennial. Most areas of this map unit are in hardwood trees. Other than the development associated with the river, there are few manmade structures. The degree of visual diversity is low.

This map unit makes up about 1 percent of the county. It is about 58 percent Chastain soils, 37 percent Tawcaw soils, and 5 percent soils of minor extent.

Chastain soils are poorly drained. Typically, the surface layer is dark brown silty clay 5 inches thick. The subsoil extends to a depth of 64 inches or more. The upper part is light brownish gray clay that has brown mottles, the middle part is light gray and gray clay that has brownish mottles, and the lower part is gray sandy clay that has yellowish brown mottles.

Tawcaw soils are somewhat poorly drained. Typically, the surface layer is dark brown clay loam 5 inches thick. The subsoil extends to a depth of 60 inches. The upper part is mainly yellowish brown clay loam, and the lower part is light gray silty clay loam that has strong brown mottles. The underlying material is light gray sand that has strong brown mottles.

Of minor extent in this map unit are Bibb and Osier soils. These soils are poorly drained and are in slack water areas or are near the stream channel.

The main concerns in management are wetness and control of flooding. The soils are well suited to the commonly grown pine trees. They are poorly suited to field crops, hay, and pasture, and they are severely limited for nonfarm uses.

2. Kinston-Johnston

Poorly drained and very poorly drained soils that are mainly loamy

The landscape is characterized by nearly level, poorly drained and very poorly drained soils that are on the flood plains and along the tributaries of Seventeen Mile Creek and the Satilla River. Slope is 0 to 2 percent. The drainage system is not well formed, and there is frequent flooding from midfall to late in spring. Most of the natural watercourses are perennial. Most areas of the soils in this map unit are in sweetgum, blackgum, cypress, bay, poplar, and water oak. Other than roads and utility lines, there is little manmade development. The degree of visual diversity is low.

This map unit makes up about 14 percent of the county. It is about 50 percent Kinston soils, 30 percent Johnston soils, and 20 percent soils of minor extent.

Kinston soils are poorly drained. Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is light brownish gray sandy loam, the middle part is light gray sandy clay loam, and the lower part is light gray sandy loam.

Johnston soils are very poorly drained. Typically, the surface layer is black mucky loam 36 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is dark grayish brown loamy sand, and the lower part is dark gray loamy sand.

Of minor extent in this map unit are Bibb and Osier soils. These poorly drained soils are on the flood plains with the major soils.

The main concerns in management are wetness and control of flooding. The soils are well suited to the commonly grown pine trees. They are poorly suited to field crops, hay, and pasture, and they are severely limited for nonfarm uses.

Nearly level soils on uplands

Two map units are made up of somewhat poorly drained to very poorly drained soils on uplands. Slope is 0 to 2 percent. The somewhat poorly drained soils are in smooth areas and have mainly a brownish, sandy surface layer and subsurface layer and a yellowish, loamy subsoil that is mottled. The poorly drained soils are in smooth areas or in drainageways and have a predominantly grayish, sandy surface layer and subsurface layer and a grayish, loamy subsoil that is mottled. The very poorly drained soils are in depressions, are predominantly grayish throughout, and have a sandy surface layer and subsurface layer and a loamy subsoil.

3. Leefield-Albany-Pelham

Somewhat poorly drained soils in smooth areas and poorly drained soils in smooth areas and in drainageways; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level, somewhat poorly drained soils in smooth areas and nearly level, poorly drained soils in slightly lower lying, smooth areas and in drainageways. Slope is 0 to 2 percent. Most of this map unit is in the eastern part of the county. Some of the soils in smooth areas and in drainageways are occasionally flooded from winter to midspring. Streams throughout the survey area are mainly intermittent. Most areas of these soils are in woodland; however, some large, smooth areas are farmed. Roads, utility lines, fences, and farmsteads are common. The degree of visual diversity is moderate.

This map unit makes up about 25 percent of the county. It is about 31 percent Leefield soils, 24 percent Albany soils, 22 percent Pelham soils, and 23 percent soils of minor extent.

Leefield soils are somewhat poorly drained. They have a surface layer and thick subsurface layer that are sandy and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is sand to a depth of 26 inches. It is pale yellow and has brownish yellow mottles and light gray sand grains. The subsoil is predominantly sandy clay loam to a depth of 62 inches or more. The upper part is yellow and has yellowish brown and light gray mottles, the middle part is pale yellow and has light gray and yellowish brown mottles, and the lower part is reticulately mottled light gray, yellowish brown, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 32 inches.

Albany soils are somewhat poorly drained. They have a surface layer and very thick subsurface layer that is sandy and a loamy subsoil. Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 48 inches. The upper part is light yellowish brown and has brownish yellow mottles; and the lower part is pale yellow and has light gray and brownish yellow mottles. The subsoil extends to a depth of 70 inches or more. The upper part is brownish yellow sandy loam that has light gray and strong brown mottles, and the lower part is light gray sandy clay loam that has yellowish brown, strong brown, and dark red mottles.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray and has yellowish brown mottles. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

Of minor extent in this map unit are Bayboro, Clarendon, Fuquay, Kinston, Johnston, Rigdon, and Stilson soils. Very poorly drained Bayboro soils are in depressions in the slightly higher lying, smooth areas. Very poorly drained Johnston soils and poorly drained Kinston soils are on the flood plains. Somewhat poorly drained Rigdon soils and moderately well drained Clarendon and Stilson soils generally are in the slightly higher lying, smooth or undulating areas. Well drained Fuquay soils are on the ridgetops.

The main concerns in management are wetness and flooding. Because of wetness, the soils in the smooth areas are only moderately suited to field crops, hay, pasture, and the commonly grown pine trees. The soils in the slightly lower lying, smooth areas and in drainageways are poorly suited to field crops, hay, and pasture because of wetness or flooding. They are well suited to the commonly grown pine trees. Areas subject to flooding are severely limited for nonfarm uses.

4. Pelham-Rigdon-Surrency

Poorly drained soils in smooth areas and in drainageways, somewhat poorly drained soils in smooth areas, and very poorly drained soils in depressions; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level, poorly drained soils in smooth areas and in drainageways; by nearly level, somewhat poorly drained soils in slightly higher lying, smooth areas; and by nearly level, poorly drained and very poorly drained soils in depressions. Slope is 0 to 2 percent. This map unit is in the northeastern and southeastern parts of the county. Soils in the depressions are ponded from late in fall to midspring. The soils in smooth areas and in drainageways are flooded from winter to midspring. Streams throughout the survey area are mainly intermittent. Most areas of these soils are in woodland; however, some small, smooth, slightly higher lying areas are farmed. Roads, utility lines, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 12 percent of the county. It is about 58 percent Pelham soils, 16 percent Rigdon soils, 15 percent Surrency soils, and 11 percent soils of minor extent.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray and has yellowish brown mottles. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

Rigdon soils are somewhat poorly drained. Typically, the surface layer is predominantly very dark gray sand 7 inches thick. It is underlain by an organically stained layer to a depth of 11 inches. This layer is mottled dark brown and dark reddish brown sand. Below, to a depth of 38 inches, is predominantly pale yellow sand that has mainly strong brown, yellowish brown, and light gray mottles. The subsoil is sandy loam to a depth of 80 inches or more. It is light gray and has mainly yellowish brown, pale yellow, brownish yellow, and strong brown mottles.

Surrency soils are very poorly drained. Typically, the surface layer is 13 inches thick. The upper part is black loamy sand, and the lower part is very dark gray sand. The subsurface layer is light brownish gray sand to a depth of 36 inches. The subsoil is mainly sandy clay loam to a depth of 62 inches or more. It is light brownish gray and has yellowish brown and gray mottles.

Of minor extent in this map unit are Albany, Bayboro, Leefield, and Sapelo soils. Somewhat poorly drained Albany and Leefield soils generally are in the slightly higher lying, smooth areas. Poorly drained Sapelo soils are in smooth areas. Very poorly drained Bayboro soils are in depressions.

The main concerns in management are wetness or ponding and flooding. The soils in smooth areas, drainageways, and depressions are poorly suited to field crops, hay, and pasture because of wetness or because they are periodically covered with water. Soils that are not periodically ponded are well suited to the commonly grown pine trees. Areas of soils subject to ponding or flooding are severely limited for nonfarm uses. Because of wetness, the soils on the slightly higher lying, smooth areas are only moderately suited to most uses. They are well suited to the commonly grown pine trees.

Nearly level to gently sloping soils on uplands

Three map units are made up of excessively drained to moderately well drained soils on uplands. Slope is 0 to 8 percent. The excessively drained soils on ridges are mainly brownish and sandy throughout. The well drained soils on ridgetops and hillsides have a brownish, predominantly sandy surface layer and a brownish, predominantly sandy clay loam subsoil that is mottled in the middle and lower parts. Content of plinthite is 5 percent or more in much of the subsoil. Nodules of ironstone are on the surface and throughout much of the soil. The moderately well drained soils on ridges have a brownish, sandy surface layer and subsurface layer and a yellowish and brownish, sandy loam subsoil that is mottled.

5. Tifton-Carnegie-Fuquay

Well drained soils on ridgetops and hillsides; these soils have a sandy or loamy surface layer or a sandy surface layer and subsurface layer and a loamy or clayey subsoil

The landscape is characterized by nearly level to gently sloping, well drained soils on ridgetops and hillsides. Slope is 0 to 8 percent. Most of this map unit is in the central to western part of the county. Less extensive areas are throughout the rest of the county. Excess surface water drains into a system of intermittent and perennial streams. Open water areas are common. Most areas of these soils are used for farming; however, some areas are in woodland. Roads, utility lines, fences, and farmsteads are common. The degree of visual diversity is moderate.

This map unit makes up about 38 percent of the county. It is about 32 percent Tifton soils, 24 percent Carnegie soils, 20 percent Fuquay soils, and 24 percent soils of minor extent.

Tifton soils have a sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is predominantly sandy clay loam, and the lower part is sandy clay. The upper part is yellowish brown, the middle part is yellowish brown and brownish yellow and has mainly strong brown and light yellowish brown mottles, and the lower part is mottled yellowish brown, red, and light gray. Content of plinthite is 5 percent or more below a depth of about 35 inches. Nodules of ironstone are on the surface and in the surface layer and the upper part of the subsoil.

Carnegie soils have a loamy surface layer and a clayey subsoil. Typically, the surface layer is dark grayish brown sandy loam 7 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is yellowish brown sandy clay loam, the middle part is yellowish brown sandy clay that has red and strong brown mottles, and the lower part is mottled strong brown, red, yellowish red, and yellowish brown clay. Nodules of ironstone are in the surface layer and throughout the upper and middle part of the subsoil. Content of plinthite is 5 percent or more below a depth of 18 inches.

Fuquay soils have a sandy surface layer and subsurface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is brownish yellow loamy sand to a depth of 32 inches. The subsoil is predominantly sandy clay loam to a depth of 80 inches or more. The upper part is mainly yellowish brown, the middle part is yellowish brown and has strong brown mottles, and the lower part is yellowish brown and has strong brown, red, and light gray mottles. Content of plinthite is 5 percent or more below a depth of 40 inches. Nodules of ironstone are throughout most of the subsoil.

Of minor extent in this map unit are Bonifay, Clarendon, Cowarts, Dothan, Stilson, and Sunsweet soils. Well drained Bonifay, Cowarts, Dothan, and Sunsweet soils are on ridgetops or hillsides with the major soils. Moderately well drained Clarendon and Stilson soils generally are on lower lying, smooth or undulating areas.

The main concerns in management are erosion on very gently sloping and gently sloping soils that have a thin sandy or loamy surface layer and the low available water capacity of the other soils in the map unit. The soils in this map unit are well suited to most uses.

6. Fuquay-Bonifay

Well drained soils on ridgetops and hillsides; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by nearly level to gently sloping, well drained soils on ridgetops or hillsides. Slope is 1 to 8 percent. Most of this map unit is in the western part of the county. Less extensive areas are in the vicinity of Douglas and Mora. Excess surface water drains into a system of intermittent and perennial streams. Open water areas are few. Most areas of these soils are in woodland; however, some small areas are farmed. Roads, utility lines, fences, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 2 percent of the county. It is about 49 percent Fuquay soils, 35 percent Bonifay soils, and 16 percent soils of minor extent.

Fuquay soils have a surface layer and thick subsurface layer that are sandy and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is brownish yellow loamy sand to a depth of 32 inches. The subsoil is predominantly sandy clay loam to a depth of 80 inches or more. The upper part is mainly yellowish brown, the middle part is yellowish brown and has strong brown mottles, and the lower part is yellowish brown and has strong brown, red, and light gray mottles. Content of plinthite is 5 percent or more below a depth of 40 inches. Nodules of ironstone are throughout most of the subsoil.

Bonifay soils have a surface layer and very thick subsurface layer that are sandy and a loamy subsoil. Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 50 inches. The upper part is yellow, the middle part is light yellowish brown and has brownish yellow mottles, and the lower part is brownish yellow. The subsoil extends to a depth of 108 inches or more. The upper few inches are brownish yellow sandy loam that has yellowish red mottles, and the rest of the subsoil is brownish yellow sandy clay loam that has yellowish, brownish, grayish, and reddish mottles. Content of plinthite is 5 percent or more below a depth of 56 inches.

Of minor extent in this map unit are Ailey, Carnegie, Cowarts, and Sunsweet soils. These soils are on the uplands with the major soils.

The main concern in management is low available water capacity. The soils in this map unit are moderately suited to most farm uses. They are well suited to most nonfarm uses.

7. Kershaw-Blanton

Excessively drained and moderately well drained soils on ridges; these soils are sandy throughout or they have a sandy surface layer and subsurface layer and a loamy subsoil

The landscape is characterized by soils on ridges that are excessively drained and very gently sloping and gently sloping or moderately well drained and nearly level to gently sloping. Slope is 0 to 8 percent. Most of this map unit is parallel to and north or east of the Satilla River and Seventeen Mile Creek. A few intermittent streams are in the survey area. Most areas of these soils are in woodland, but a few small areas are farmed. Roads, utility lines, fences, and farmsteads are few. The degree of visual diversity is low.

This map unit makes up about 3 percent of the county. It is about 80 percent Kershaw soils, 15 percent Blanton soils, and 5 percent soils of minor extent.

Kershaw soils are excessively drained. Typically, the soil is coarse sand throughout. The surface layer is dark grayish brown 3 inches thick. The underlying material extends to a depth of 90 inches or more. The upper part is light yellowish brown and has brown mottles, the middle part is brownish yellow, and the lower part is very pale brown and has brownish yellow mottles.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown sand 8 inches thick. The subsurface layer is sand to a depth of 65 inches. The upper part is light yellowish brown, the middle part is very pale brown, and the lower part is white and has brownish yellow mottles. The subsoil extends to a depth of 90 inches or more. The upper part is brownish yellow sandy loam that has strong brown mottles, and the lower part is very pale brown sandy loam that has light gray, brownish yellow, and yellowish red mottles.

Of minor extent in this map unit are Sapelo soils. Poorly drained Sapelo soils are in the lower lying, smooth areas.

The main concern in management is low available water capacity. These soils are poorly suited to field crops, hay, and pasture because of this limitation. Most of the soils are poorly suited to the commonly grown pine trees. They are well suited to most nonfarm uses.

Very gently sloping to strongly sloping soils on uplands

One map unit is made up of well drained soils on uplands. Slope is 2 to 12 percent. The soils have a brownish, sandy surface layer and subsurface layer and a brownish or yellowish, loamy or clayey subsoil that is mottled in the middle and lower parts. In most places, the subsoil is firm, or it is firm, brittle, and hard.

8. Bonifay-Esto-Ailey

Well drained soils on ridgetops and hillsides; these soils have a sandy surface layer and subsurface layer and a loamy or clayey subsoil

The landscape is characterized by very gently sloping to strongly sloping, well drained soils on ridgetops and hillsides. Slope is 2 to 12 percent. Most of this map unit is north of Pridgen and extends to the flood plain of the Ocmulgee River. Excess surface water drains into a system of intermittent and perennial streams. Open water areas are common. Most areas of these soils are in woodland; however, a few areas are farmed. Manmade structures are few. The degree of visual diversity is moderate.

This map unit makes up about 5 percent of the county. It is about 38 percent Bonifay soils, 24 percent Esto soils, 17 percent Ailey soils, and 21 percent soils of minor extent.

Bonifay soils have a surface layer and a very thick subsurface layer that are sandy and a loamy subsoil.

Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 50 inches. The upper part is yellow, the middle part is light yellowish brown and has brownish yellow mottles, and the lower part is brownish yellow. The subsoil extends to a depth of 108 inches or more. The upper few inches are brownish yellow sandy loam that has yellowish red mottles, and the rest of the subsoil is brownish yellow sandy clay loam that has yellowish, brownish, grayish, and reddish mottles. Content of plinthite is 5 percent or more below a depth of 56 inches.

Esto soils have a sandy surface layer and subsurface layer and a clayey subsoil. Typically, the surface layer is dark grayish brown loamy sand 5 inches thick. The subsurface layer is light yellowish brown loamy sand 3 inches thick. The subsoil is predominantly clay to a depth of 70 inches or more. The upper part is mainly strong brown, the middle part is yellowish brown and has red and light brownish gray mottles, and the lower part is light grayish brown and has red and strong brown mottles.

Ailey soils have a surface layer and thick subsurface layer that are sandy and a loamy subsoil that is brittle and hard in the lower part. Typically, the surface layer is dark grayish brown loamy coarse sand 6 inches thick. The subsurface layer is light yellowish brown loamy coarse sand to a depth of 28 inches. The subsoil is predominantly sandy clay loam to a depth of 44 inches. It is firm, brittle, and slightly hard or hard below a depth of 36 inches. The upper part is brownish yellow, the middle part is brownish yellow and has strong brown and red mottles, and the lower part is yellowish brown and has strong brown, red, and gray mottles. The underlying material extends to a depth of 70 inches or more. It is mottled brownish yellow, red, and light gray sandy clay loam and coarse sandy loam. This material is hard if dry and firm if moist.

Of minor extent in this map unit are Blanton, Dothan, and Troup soils. These soils are on the uplands with the major soils.

The main concerns in management are low available water capacity of soils that have a sandy surface layer and subsurface layer and erosion on the other soils in the map unit. The sandy soils are poorly suited to most farm uses; the other soils are moderately suited to farm uses. The soils in this map unit are well suited to nonfarm uses.

Broad land use considerations

Considerable acreage in the survey area is used as cropland, pasture, and woodland. The general soil map can be used for broad planning, but it should not be used to locate sites for specific structures. In general, the soils in the survey area that are well suited to cultivated crops also are well suited to urban development. Their excellence as farmland should not be overlooked in planning. The data about specific soils can be helpful in planning future land use patterns. Interpretations made from the general soil map for broad land use planning are specific for each county. The following broad land use considerations apply to the entire survey area.

Many of the soils on uplands in the survey area are used for cultivated crops and pasture. Most of these soils are well drained and well suited to farming. However, some of the soils in the survey area are not well suited to farming because of low available water capacity, a limited effective root zone, wetness, ponding, flooding, or excessive slope.

Part of the survey area is used for woodland. The soils are predominantly moderately suited or well suited to the production of trees.

About one-third of the soils in the survey area are on ridgetops and hillsides of uplands. They generally are well drained and well suited to nonfarm use. The rest of the soils are on flood plains and stream terraces, in upland depressions, and in the smooth areas of uplands. They are less well drained, seasonally wet, periodically ponded, frequently or occasionally flooded, or have excessive slope.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability of a soil for specific uses. They also can be used to plan the management needed for those uses. A soil is well suited if it has properties that are favorable; a soil is moderately suited if it has properties that require special planning and management to obtain satisfactory performances; a soil is poorly suited if it has properties that are unfavorable. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Dothan loamy sand, 2 to 5 percent slopes, is one of several phases in the Dothan series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils, or areas of soil and urban land, in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Carnegie-Cowarts complex, 5 to 8 percent slopes, eroded, is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Osier-Bibb association, frequently flooded, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Kinston and Johnston soils, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and suitabilities for many uses. The Glossary defines many of the terms used in describing the soils.

AeC—Alley loamy coarse sand, 2 to 8 percent slopes. This well drained, very gently sloping and gently sloping soil is on ridgetops and hillsides predominantly on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 10 to 60 acres.

Typically, the surface layer is dark grayish brown loamy coarse sand 6 inches thick. The subsurface layer is light yellowish brown loamy coarse sand to a depth of 28 inches. The subsoil is predominantly sandy clay loam to a depth of 44 inches. It is firm, brittle, and slightly hard or hard below a depth of 36 inches. The upper part of the subsoil is brownish yellow, the middle part is brownish yellow and has strong brown and red mottles, and the lower part is yellowish brown and has strong brown, red, and gray mottles. The underlying material extends to a depth of 70 inches or more. It is mottled brownish yellow, red, and light gray sandy clay loam and coarse sandy loam. This material is hard if dry and firm if moist.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the upper part of the soil and slow in the lower part. The available water capacity is low. Tilth is good. The effective root zone is limited by the underlying dense layer.

Included with this soil in mapping are a few small areas of Bonifay, Esto, Troup, and Wicksburg soils.

This Ailey soil is poorly suited to field crops because of low available water capacity and the limited root zone. It is moderately suited to hay and pasture. Returning crop residue to the soil is effective in retaining soil moisture.

Longleaf pine and slash pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy trees, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, slow permeability in the lower part of the subsoil and in the underlying material limits the use of this soil for septic tank absorption fields. Also, seepage limits most sanitary facilities. Because of the thick sandy upper layers in the soil, and the slowly permeable lower layers, this soil is only moderately suited to recreational development.

This soil is in capability subclass IVs and woodland suitability group 4s.

AoA—Albany sand, 0 to 2 percent slopes. This somewhat poorly drained, nearly level soil is on smooth uplands of the Atlantic Coast Flatwoods. Mapped areas are 5 to 30 acres.

Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 48 inches. The upper part is light yellowish brown and has brownish yellow mottles, and the lower part is pale yellow and has light gray and brownish yellow mottles. The subsoil extends to a depth of 70 inches or more. The upper part is brownish yellow sandy loam that has light gray and strong brown mottles, and the lower part is light gray sandy clay loam that has yellowish brown, strong brown, and dark red mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is very low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep, except from late in fall to early in spring when it is restricted by a water table at a depth of 1 foot to 2.5 feet.

Included with this soil in mapping are small areas of Blanton, Bonifay, and Leefield soils. Wet soil areas, less than 3 acres, are included and are indicated by a wet spot symbol on the map.

This Albany soil is moderately suited to field crops, hay, and pasture because of wetness. This limitation can be overcome by drainage. Also, the available water capacity is very low and limits yields. Returning crop residue to the soil is effective in retaining moisture.

Loblolly pine and slash pine are well suited to this soil. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified or special implements or by performing operations during the drier seasons. Drainage, reduction of competing plants, and the use of adapted species generally increase survival of the seedlings.

This soil is poorly suited to most urban uses because of wetness. Wetness can be reduced by drainage. This soil is poorly suited to recreational development because it is too sandy, and from late in fall to early in spring the soil is wet.

This soil is in capability subclass IIIw and woodland suitability group 2w.

Ba—Bayboro loam, ponded. This very poorly drained, nearly level soil is in shallow depressions mainly in the Atlantic Coast Flatwoods. It is ponded from late in fall to late in spring. Slope is less than 1 percent. Mapped areas are 5 to 100 acres.

Typically, the surface layer is loam 14 inches thick. The upper part is black, and the lower part is very dark gray. The subsoil extends to a depth of 70 inches or more. The upper few inches are dark gray clay loam, and the rest of the subsoil is gray clay that has brownish or yellowish mottles.

This soil is medium in natural fertility and has a high content of organic matter in the surface layer. It is strongly acid or very strongly acid throughout. Permeability is slow, and the available water capacity is high. The root zone is deep, except from late in fall to late in spring when it is restricted by a water table at the surface or within a depth of 1 foot or when this soil is ponded.

Included with this soil in mapping are small areas of Pelham and Surrency soils.

This Bayboro soil is mostly wooded. Baldcypress, blackgum, sweetgum, and water tupelo are the common trees; some areas are dominated by water-tolerant shrubs and grasses. Ponding is the main limitation to equipment use and to seedling survival for other than the common water-tolerant trees.

This soil is poorly suited to most uses because of ponding. Unless outlets are available for drainage, this limitation is difficult to overcome.

This soil is in capability subclass VIw and woodland suitability group 4w.

BbB—Blanton sand, 0 to 8 percent slopes. This moderately well drained, nearly level to gently sloping soil is on broad ridges on uplands of the Southern Coastal Plain. Slopes are mostly undulating, and convex. Mapped areas are 30 to 100 acres.

Typically, the surface layer is dark grayish brown sand 8 inches thick. The subsurface layer is sand to a depth of 65 inches. The upper part is light yellowish brown, the middle part is very pale brown, and the lower part is white and has brownish yellow mottles. The subsoil extends to a depth of 90 inches or more. The upper part is brownish yellow sandy loam that has strong brown mottles, and the lower part is very pale brown sandy loam that has light gray, brownish yellow, and yellowish red mottles.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the surface layer and subsurface layer and moderate in the subsoil. The available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of soils that are sandy throughout. Also included are small areas of Albany, Cainhoy, Kershaw, and Sapelo soils.

This Blanton soil is poorly suited to field crops because of low available water capacity. It is moderately suited to hay and pasture. Returning crop residue to the soil helps retain soil moisture. Yields for the crops commonly grown can be increased if this soil is irrigated.

Loblolly pine, slash pine, and longleaf pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage and the high content of sand are limitations for most sanitary facilities. Because it is too sandy, this soil is poorly suited to recreational development.

This soil is in capability subclass IIIs and woodland suitability group 3s.

BgC—Blanton fine gravelly sand, 2 to 8 percent slopes. This moderately well drained, very gently sloping and gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are mostly undulating and rolling. Mapped areas are 10 to 75 acres.

Typically, the surface layer is very dark grayish brown fine gravelly sand 5 inches thick. The subsurface layer is light yellowish brown fine gravelly sand to a depth of 48 inches. The subsoil is dominantly sandy clay loam to a depth of 70 inches or more. The upper part is reddish yellow; the middle part is reddish yellow and has red, yellowish brown, and pale yellow mottles; and the lower part is mottled reddish yellow, red, yellowish brown and light gray.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the surface layer and subsurface layer and moderate in the subsoil. The available water capacity is very low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Ailey, Bonifay, and Troup soils.

This Blanton soil is poorly suited to field crops because of very low available water capacity. It is moderately suited to hay and pasture. Returning crop residue to the soil helps retain soil moisture. Yields for the crops commonly grown can be increased if this soil is irrigated.

Loblolly pine, longleaf pine, and slash pine are moderately suited to this soil. Because this soil has very low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings.

This soil is well suited to most urban uses. However, seepage and the high content of sand are limitations for most sanitary facilities. Because it is too sandy, this soil is poorly suited to recreational development.

This soil is in capability subclass IVs and woodland suitability group 3s.

BoC—Bonifay sand, 2 to 8 percent slopes. This well drained, very gently sloping and gently sloping soil is on broad ridgetops and hillsides on uplands of the Southern Coastal Plain. Slopes are mostly smooth and convex. Mapped areas are 5 to 80 acres.

Typically, the surface layer is dark grayish brown sand 7 inches thick. The subsurface layer is sand to a depth of 50 inches. The upper part is yellow, the middle part is light yellowish brown and has brownish yellow mottles, and the lower part is brownish yellow. The subsoil extends to a depth of 108 inches or more. The upper few inches are brownish yellow sandy loam that has yellowish red mottles, and the rest of the subsoil is brownish yellow sandy clay loam that has yellowish, brownish, grayish, and reddish mottles. Content of plinthite is 5 percent or more below a depth of 56 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the surface layer and subsurface layer and is moderately slow in the subsoil. The available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Albany, Blanton, Fuquay, and Troup soils. Also included are some areas of soils that have more than 10 percent medium and coarse quartz pebbles. Wet soil areas, less than 3 acres, are indicated by a wet spot symbol on the map.

This Bonifay soil is moderately suited to field crops, hay, and pasture because of low available water capacity. Returning crop residue to the soil helps retain soil moisture. Yields for the crops commonly grown can be increased if this soil is irrigated.

Loblolly pine, longleaf pine, and slash pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage is a limitation for most sanitary facilities. Because it is too sandy, this soil is poorly suited to recreational development.

This soil is in capability subclass IIIs and woodland suitability group 3s.

CbB—Cainhoy sand, 0 to 5 percent slopes. This somewhat excessively drained, nearly level and very gently sloping soil is on broad ridges in the Atlantic Coast Flatwoods. Slopes are smooth and convex. Mapped areas are 10 to 100 acres.

Typically, the surface layer is dark grayish brown sand 4 inches thick. The underlying layers are sand to a depth of 120 inches or more. The upper layers, to a depth of 72 inches, are yellowish brown, brownish yellow, and pale yellow. The middle layers, to a depth of 110 inches, are light gray and have brownish mottles. The lower, organically stained layer is predominantly dark brown and weakly cemented.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid, except for the surface layer in areas that have been limed. Permeability is rapid, and the available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Blanton soils. Also included are soils similar to Cainhoy soils, except they do not have the organically stained, weakly cemented layer or are somewhat poorly drained.

This Cainhoy soil is poorly suited to field crops, hay, and pasture because of low available water capacity and low fertility. However, this soil responds well to irrigation, and yields can be substantially increased. Returning crop residue to the soil is effective in retaining moisture.

Loblolly pine and slash pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, seepage and the high content of sand are limitations for most sanitary facilities. Because it is too sandy, this soil is poorly suited to recreational development.

This soil is in capability subclass IVs and woodland suitability group 3s.

CeB2—Carnegie sandy loam, 3 to 5 percent slopes, eroded. This well drained, very gently sloping soil is on knolls and hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface layer and the upper part of the subsoil. In most places, the soils are undulating and contain a few galled spots and gullies. Mapped areas are 5 to 30 acres.

Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil extends to a depth of 70 inches or more. The upper part is yellowish brown sandy clay loam, the middle part is yellowish brown sandy clay that has yellowish red and strong brown mottles, and the lower part is mottled yellowish brown, dark red, light brownish gray and pale brown, and yellow clay. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Content of plinthite is 5 percent or more between a depth of 19 and 46 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderately slow, and the available water capacity is moderate. Runoff is rapid. Tilth is good. The effective root zone is limited to the upper 20 inches of the soil; plinthite below this depth restricts penetration of plant roots.

Included with this soil in mapping are areas of Cowarts, Sunsweet, and Tifton soils.

This Carnegie soil is well suited to field crops, hay, and pasture. However, the rapid runoff and somewhat gullied landscape are concerns in management. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown (fig. 2). Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help control erosion.

Slash pine and loblolly pine are well suited to this soil. Although there are no significant limitations for woodland use, management practices performed on the contour keep erosion at a minimum.

This soil is well suited to most urban uses. However, moderately slow permeability in the subsoil limits its use for septic tank absorption fields. This limitation can be overcome by special design and installation. This soil is moderately suited to most recreational development because the subsoil has moderately slow permeability.

This soil is in capability subclass IIIe and woodland suitability group 2o.

CgC2—Carnegie-Cowarts complex, 5 to 8 percent slopes, eroded. This complex consists of well drained, gently sloping soils mainly on hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface layer and the upper part of the subsoil. In most places, the soils contain rills or galled spots and gullies. Areas of Carnegie and Cowarts soils are so intermingled that they could not be mapped separately at the scale selected. Mapped areas are 10 to 40 acres.

Carnegie sandy loam makes up about 55 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 7 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part

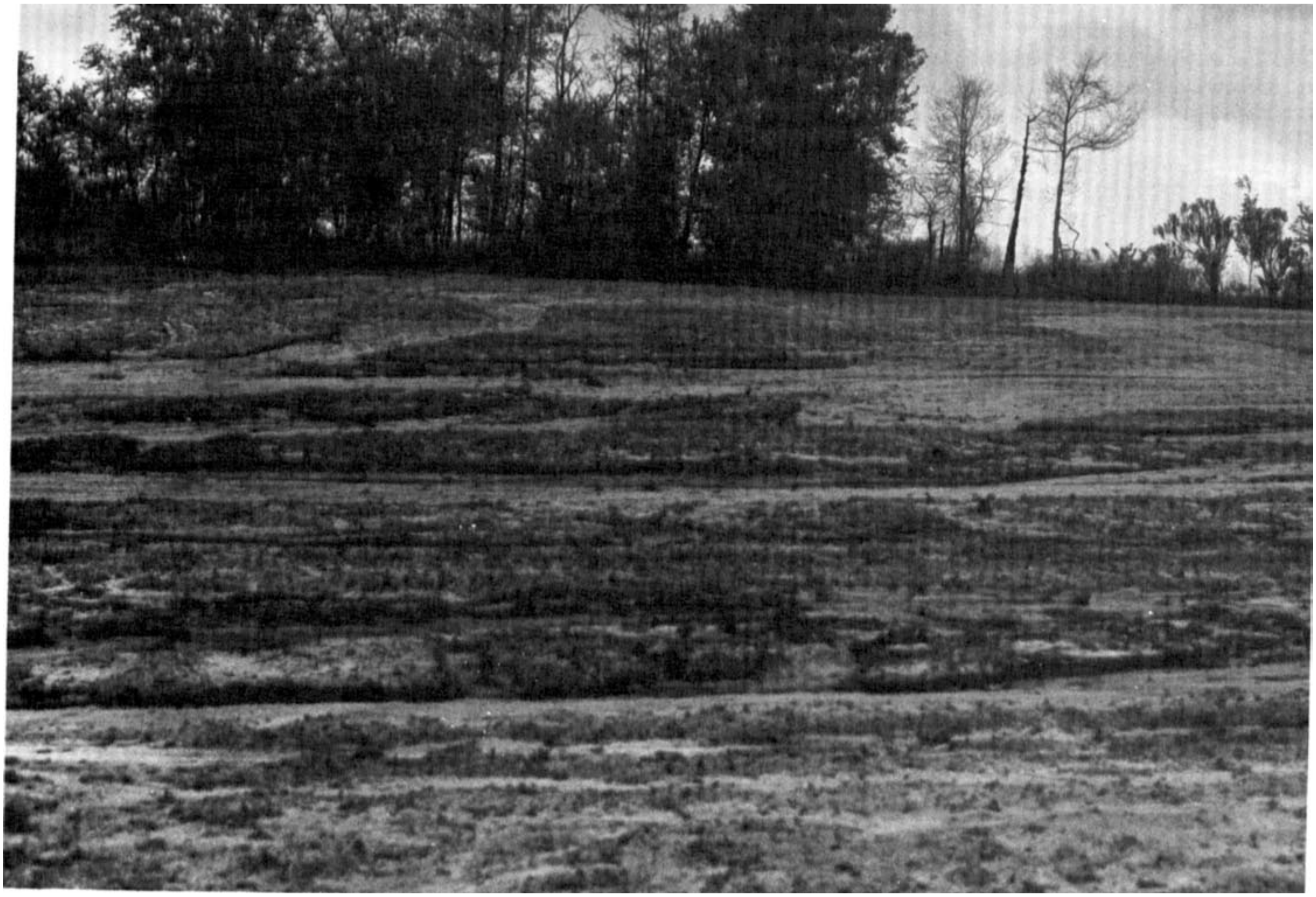


Figure 2.—Good conservation management is needed to control erosion on cropland on Carnegie sandy loam, 3 to 5 percent slopes, eroded.

is yellowish brown sandy clay loam, the middle part is yellowish brown sandy clay that has red and strong brown mottles, and the lower part is mottled strong brown, red, yellowish red, and yellowish brown clay. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Content of plinthite is 5 percent or more below a depth of 18 inches.

This Carnegie soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderately slow, and the available water capacity is moderate. Runoff is rapid. Tilth is good. The effective root zone is limited to about the upper 20 inches of the soil; plinthite below this depth restricts penetration of plant roots.

Cowarts loamy sand makes up about 30 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is predominantly sandy clay loam to a depth of 33 inches. It is strong brown throughout; the lower part has red mottles. The underlying material to a depth of 65 inches or more is mottled yellowish brown, light gray, and red sandy loam that is dense.

This Cowarts soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the subsoil and moderately slow or slow in the underlying material. The available water capacity is moderate. Runoff is rapid. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The effective root zone is limited to the upper 30 to 40 inches of the soil; the underlying material is dense and not easily penetrated by plant roots.

Included in this complex in mapping are small areas of Sunsweet and Tifton soils. Also included are severely eroded soils that have a sandy clay loam surface layer.

This complex is moderately suited to field crops; it is well suited to hay and pasture. The rapid runoff and somewhat gullied landscape are concerns in management. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Grasses and legumes reduce runoff and help control erosion.

Slash pine and loblolly pine are well suited to this complex. Although there are no significant limitations for woodland use, management practices performed on the contour keep erosion at a minimum.

This complex is well suited to most urban uses. However, moderately slow or slow permeability limits the use of these soils for septic tank absorption fields. This limitation can be overcome by special design and installation. This complex is moderately suited to most recreational development because of the moderately slow or slow permeability.

This complex is in capability subclass IVe and woodland suitability group 2o.

Ch—Chastain-Tawcaw complex, frequently flooded. This complex consists of nearly level soils on flood plains of the Ocmulgee River. The poorly drained Chastain soils are in sloughs and on lower lying flood plains, and the somewhat poorly drained Tawcaw soils are on the slightly higher lying flood plains. These soils are so intermingled that they could not be mapped separately at the scale selected. They frequently are flooded from late in fall to midspring (fig. 3). Mapped areas are mainly long and are 50 to 700 acres. Slopes are 0 to 2 percent.

Poorly drained Chastain silty clay makes up about 55 percent of the map unit. Typically, the surface layer is dark brown silty clay 5 inches thick. The subsoil extends to a depth of 64 inches or more. The upper part is light brownish gray clay that has brown mottles, the middle part is light gray and gray clay that has brownish mottles, and the lower part is gray sandy clay that has yellowish brown mottles.

This Chastain soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is slow, and the available water capacity is moderate. Tilth is fair. The root zone is deep, except from late in fall to late in spring when it is restricted by a water table within a depth of 1 foot.

Somewhat poorly drained Tawcaw clay loam makes up about 35 percent of the map unit. Typically, the surface layer is dark brown clay loam 5 inches thick. The subsoil extends to a depth of 60 inches. The upper part is mainly yellowish brown clay loam, and the lower part is light gray silty clay loam that has strong brown mottles. The underlying material is light gray sand that has strong brown mottles.

This Tawcaw soil is low in natural fertility and organic matter content. It is moderately acid to very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is slow, and the available water capacity is moderate. Tilth is fair. The root zone is deep, except from late in fall to midspring when it is restricted by a water table at a depth of 1.5 to 2.5 feet.

Included with these soils in mapping are small areas of moderately well drained soils that are loamy throughout.

This complex is poorly suited to field crops, hay, and pasture because of frequent flooding.

Slash pine, loblolly pine, yellow-poplar, and sweetgum are well suited to these soils. However, seasonal wetness and flooding limit the use of conventional equipment and increase seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species generally increase survival of the seedlings.

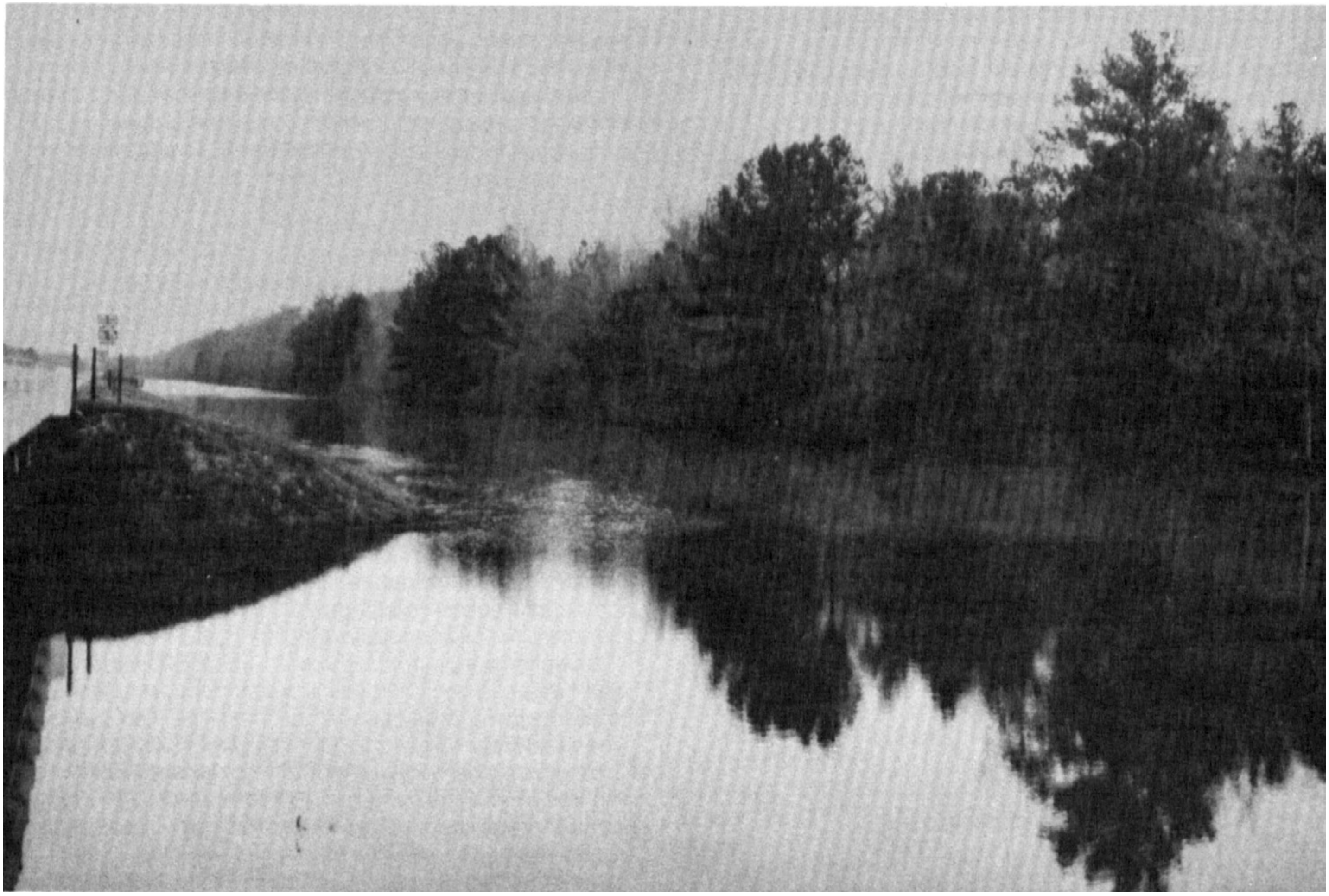


Figure 3.—Flooding on Chastain and Tawcaw soils near the Ocmulgee River. These soils are frequently flooded from late in fall to midspring.

The soils in this complex are poorly suited to recreational development because of wetness and the hazard of flooding. These limitations also severely limit urban uses. They can be overcome only by extensive flood control and drainage.

This complex is in capability subclass VIw. Chastain soil is in woodland suitability group 2w, and Tawcaw soil is in woodland suitability group 1w.

CnA—Clarendon loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on broad, smooth uplands mainly of the Southern Coastal Plain. Mapped areas are 5 to 30 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. The upper few inches are light yellowish brown; the middle part is brownish yellow and has reddish yellow, strong brown, and light gray mottles; and the lower part is mottled strong brown, light gray, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 26 inches. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is moderate. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep, except in winter and spring when it is restricted by a water table at a depth of 1.5 to 2.5 feet.

Included with this soil in mapping are small areas of Dothan, Leefield, Stilson, and Tifton soils. Also included are wet soil areas, less than 3 acres, that are indicated by a wet spot symbol on the map.

This Clarendon soil is well suited to field crops, hay, and pasture. However, because of wetness, drainage is needed in most places.

Slash pine, loblolly pine, sweetgum, and yellow-poplar are well suited to this soil. However, seasonal wetness limits the use of conventional equipment. This limitation can be overcome by using modified or special equipment or performing operations during the drier seasons.

This soil is moderately suited to most urban uses and recreational development because of wetness. Also, moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, these limitations can be overcome by special design and application.

This soil is in capability subclass IIw and woodland suitability group 2w.

CnB—Clarendon loamy sand, 2 to 5 percent slopes. This moderately well drained, very gently sloping soil is on smooth and undulating uplands adjacent to ponds or depressions on the Southern Coastal Plain. Mapped areas are 5 to 50 acres.

Typically, the surface layer is very dark grayish brown loamy sand 9 inches thick. The subsurface layer is pale yellow loamy sand to a depth of 16 inches. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. The upper few inches are brownish yellow and have yellowish red mottles, the middle part is brownish yellow and has red and light gray mottles, and the lower part is mottled yellowish brown, strong brown, light gray, and red. Content of plinthite is 5 percent or more below a depth of 22 inches. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is moderate. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep, except in winter and spring when it is restricted by a water table at a depth of 1.5 to 2.5 feet.

Included with this soil in mapping are a few small areas of Dothan, Fuquay, and Tifton soils. Also included are small areas of soils that have 5 percent or more nodules of ironstone in the surface layer.

This Clarendon soil is well suited to field crops, hay, and pasture. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help control erosion.

Slash pine, loblolly pine, sweetgum, and yellow-poplar are well suited to this soil. However, seasonal wetness limits the use of conventional equipment. This limitation can be overcome by using modified or special equipment or performing operations during the drier seasons.

This soil is moderately suited to urban uses and recreational development because of wetness. Also, moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, these limitations can be overcome by special design and application.

This soil is in capability subclass IIe and woodland suitability group 2w.

CsD2—Cowarts-Sunsweet complex, 8 to 17 percent slopes, eroded. This complex consists of well drained, strongly sloping and moderately steep soils on hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface layer and the upper part of the subsoil. In most places, the soils contain rills or galled spots and gullies. Areas of Cowarts and Sunsweet soils are so intermingled that they could not be mapped separately at the scale selected. Mapped areas are 10 to 50 acres.

Cowarts loamy sand makes up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is predominantly sandy clay loam to a depth of 33 inches. It is strong brown throughout; the lower part has red mottles. The underlying material to a depth of 65 inches or more is mottled yellowish brown, light gray, and red sandy loam that is dense.

This Cowarts soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the subsoil and moderately slow in the underlying material. The available water capacity is moderate. Runoff is rapid. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The effective root zone is limited to the upper 30 to 40 inches of the soil; the underlying material is dense and not easily penetrated by plant roots.

Sunsweet gravelly sandy loam makes up about 35 percent of each mapped area. Typically, the surface layer is dark brown gravelly sandy loam 5 inches thick. The subsoil is predominantly sandy clay to a depth of 65 inches or more. The upper part is yellowish red; the middle part is mottled yellowish brown, light gray, and weak red; and the lower part is mottled light gray, weak red, and strong brown. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Content of plinthite is 5 percent or more below a depth of 5 inches.

This Sunsweet soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderately slow, and the available water capacity is moderate. Runoff is rapid. The effective root zone is limited to about the upper 12 inches of the soil; plinthite below this depth restricts penetration of plant roots.

Included in this complex in mapping are small areas of Ailey, Carnegie, and Esto soils. Also included are severely eroded soils that have a sandy clay loam surface layer.

This complex is poorly suited to field crops because of slope and rapid runoff. It is moderately suited to hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Grasses and legumes reduce runoff and help control erosion.

Loblolly pine, slash pine, and longleaf pine are well suited to this complex. However, management practices need to be performed on the contour to keep erosion at a minimum. In parts of the complex, seedling mortality and equipment limitations are management concerns because of the clayey subsoil. Proper planting depth or use of a chisel or subsoiler generally increases survival of the seedlings. Compaction caused by equipment can be reduced by use of a chisel or subsoiler. This promotes revegetation after harvest.

This complex is moderately suited to most urban uses and recreational development because of slope. Also, moderately slow permeability limits the use of the soils in this complex for septic tank absorption fields and recreational development.

This complex is in capability subclass IVe. The Cowarts soil is in woodland suitability group 2o, and the Sunsweet soil is in woodland suitability group 3c.

Da—Dasher muck, ponded. This very poorly drained, nearly level soil is in shallow, oval shaped depressions in the Atlantic Coast Flatwoods. It is ponded most of the year. Slope is less than 1 percent. Mapped areas are 25 to 500 acres.

Typically, the surface layer is black muck 8 inches thick. The underlying organic material extends to a depth of 70 inches or more. The upper part is dark reddish brown, and the lower part is black.

This soil is low in natural fertility but very high in organic matter content. It is extremely acid throughout. Permeability is moderately rapid, and the available water capacity is high. The root zone is deep. This soil is ponded, or the water table is at a depth of less than 0.5 foot most of the year.

Included with this soil in mapping are small areas of Bayboro, Pelham, and Surrency soils.

Baldcypress, water tupelo, and pond pine are the common trees (fig. 4). Ponding is a severe limitation for other than the common water-tolerant trees, shrubs, and grasses.

This Dasher soil is poorly suited to field crops, hay, pasture, urban uses, and recreational development mainly because of ponding. This limitation is difficult to overcome.

This soil is a good source of peat moss. It is mixed with mineral soil and used as a soil conditioner.

This soil is in capability subclass VIIw; it is not assigned to a woodland suitability group.

DoA—Dothan loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands of the Southern Coastal Plain. Mapped areas are 10 to 40 acres.

Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. The upper and middle parts are brownish yellow, and the lower part is brownish yellow and has yellowish red, strong brown, and white mottles. Content of plinthite is 5 percent or more below a depth of 38 inches. A few nodules of ironstone are in the surface layer and in the middle part of the soil.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper and middle parts of the subsoil and moderately slow in the lower part. The available water capacity is moderate. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Clarendon, Fuquay, and Tifton soils.

This Dothan soil is well suited to field crops, hay, and pasture (fig. 5). During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help maintain organic matter content of the soil and conserve moisture.

Slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses and recreational development. However, moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability class I and woodland suitability group 2o.

DoB—Dothan loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 5 to 40 acres.

Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsoil is predominantly

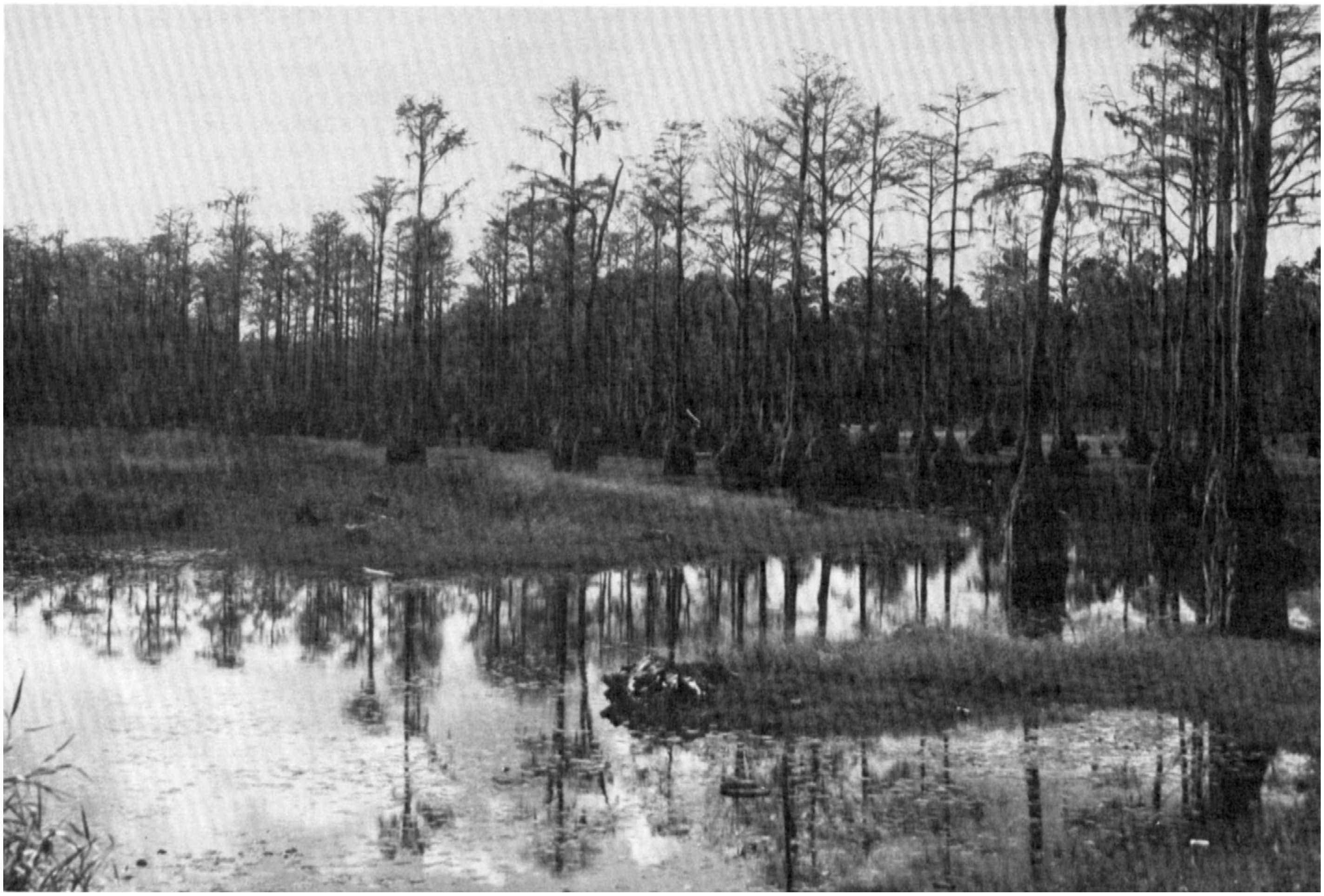


Figure 4.—Baldcypress on Dasher muck, ponded. Although this soil is poorly suited to most uses, it has good potential as habitat for wetland wildlife.

sandy clay loam to a depth of 60 inches or more. The upper and middle parts are brownish yellow, and the lower part is brownish yellow and has red, strong brown, and white mottles. Content of plinthite is 5 percent or more below a depth of 38 inches. A few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is moderate. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few areas of Clarendon, Fuquay, and Tifton soils.

This Dothan soil is well suited to field crops, hay, and pasture. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes in the cropping system, terraces, and contouring reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management practices performed on the contour keep soil erosion at a minimum.

This soil is well suited to most urban uses and recreational development. However, moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability subclass IIe and woodland suitability group 2o.

EoB—Esto loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is predominantly on undulating ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 5 to 40 acres.

Typically, the surface layer is dark grayish brown loamy sand 5 inches thick. The subsurface layer is light yellowish brown loamy sand 3 inches thick. The subsoil is predominantly clay to a depth of 70 inches or more. The upper part is mainly strong brown, the middle part is yellowish brown and has red and light brownish gray mottles, and the lower part is light brownish gray and has red and strong brown mottles.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is slow, and the available water capacity is moderate. Runoff is rapid. Tilth is good. The effective root zone is limited because of the firm, clayey subsoil.

Included with this soil in mapping are small areas of Ailey, Carnegie, Cowarts, Sunsweet, and Troup soils. Also included in areas of less than 1 acre are rock outcrops. They are indicated by a special symbol on the map.

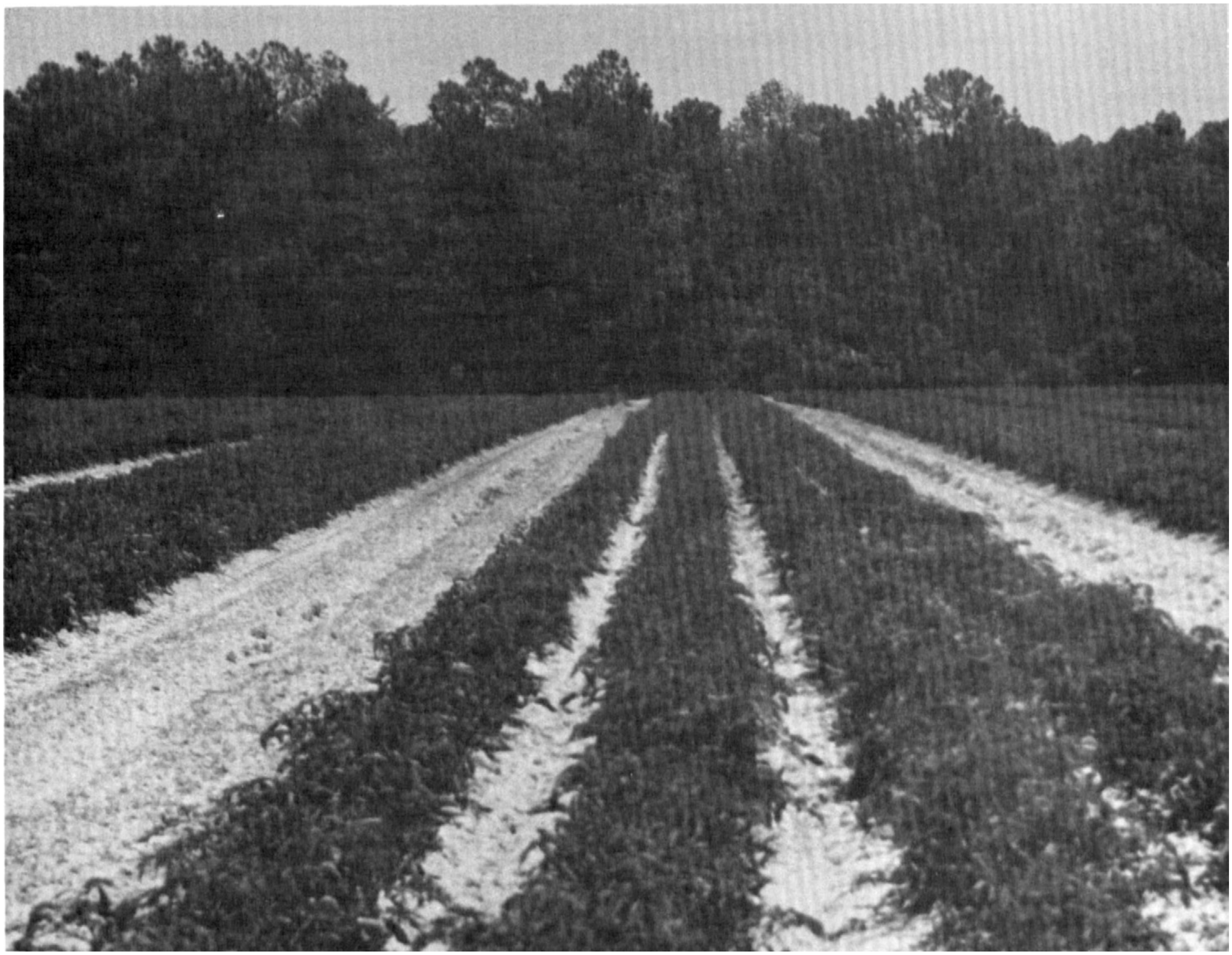


Figure 5.—Tomatoes on Dothan loamy sand, 0 to 2 percent slopes. This prime farmland soil is well suited to the common vegetable and cultivated crops.

This Esto soil is moderately suited to field crops, hay, and pasture because of the limited effective rooting depth. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help to control erosion.

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations to woodland use, management practices performed on the contour keep soil erosion at a minimum.

This soil is moderately suited to urban uses and recreational development. Slow permeability in the subsoil limits the use of this soil for septic tank absorption fields and most recreational development. Shrinking and swelling further limit urban uses.

This soil is in capability subclass IIIe and woodland suitability group 3o.

EoD—Esto loamy sand, 5 to 12 percent slopes. This well drained, gently sloping and strongly sloping soil is predominantly on undulating hillsides on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 5 to 25 acres.

Typically, the surface layer is dark grayish brown loamy sand 5 inches thick. The subsoil extends to a depth of 70 inches or more. The upper part is yellowish brown sandy clay loam and sandy clay and has reddish mottles, and the lower part is mottled grayish, reddish, and brownish clay.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is slow, and the available water capacity is moderate. Runoff is rapid. Tilth is good. The effective root zone is limited because of the firm, clayey subsoil.

Included with this soil in mapping are small areas of Ailey, Carnegie, Cowarts, Sunsweet, and Troup soils. Also included in areas of less than 1 acre are rock outcrops. They are indicated by a special symbol on the map.

This Esto soil is poorly suited to field crops because of the limited effective rooting depth and slope. However, it is moderately suited to hay and pasture. Erosion is a severe hazard if cultivated crops are grown. Grasses and legumes reduce runoff and help control erosion.

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations to woodland use, management practices performed on the contour keep soil erosion at a minimum.

This soil is moderately suited to urban uses and recreational development. Slow permeability in the subsoil and slope limit the use of this soil for septic tank absorption fields and most recreational development. Shrinking and swelling further limit urban uses.

This soil is in capability subclass VIe and woodland suitability group 3o.

ErD—Esto-Rock outcrop complex, 5 to 12 percent slopes. This complex is on uplands in the Rock Creek area in Coffee County. It is made up of well drained, gently sloping and strongly sloping Esto soil on hillsides and Rock outcrop on ridges, benches, and escarpments. The areas of Esto soil and Rock outcrop are so intermingled that they could not be mapped separately at the scale selected. Mapped areas are 10 to 100 acres.

Esto loamy sand makes up about 55 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand 5 inches thick. The subsoil extends to a depth of 70 inches or more. The upper part is yellowish brown sandy clay loam and sandy clay and has reddish mottles, and the lower part is mottled grayish, reddish, and brownish clay.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is slow, and the available water capacity is moderate. Runoff is rapid. Tilth is good. The effective root zone is limited because of the firm, clayey subsoil.

Rock outcrop makes up 40 percent of each mapped area. It is hard sandstone and claystone and is severely limited for most uses (fig. 6).

Included in this complex in mapping are small areas of Ailey and Wicksburg soils. Also included are sparsely vegetated areas that have a thin covering of soil material overlying the rock.

This complex is not suited to field crops because of the limited rooting depth and slope. However, the soil areas are moderately suited to hay and pasture. Grasses and legumes in these areas reduce runoff and help control erosion.

Loblolly pine and slash pine are moderately suited to the soil areas in this complex. Although there are no significant limitations to woodland use in these areas, management practices performed on the contour keep soil erosion at a minimum.

The soil areas in this complex are moderately suited to urban uses and recreational development. Slow permeability in the subsoil and slope limit the use of the soil areas for septic tank absorption fields and most recreational development. Shrinking and swelling further limit urban uses in the soil areas.

This complex is in capability subclass VIIe. Esto soil is in woodland suitability group 3o, and Rock outcrop is not assigned to a woodland suitability group.

FsB—Fuquay loamy sand, 1 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on ridgetops on uplands of the Southern Coastal Plain. Slopes are mostly smooth and convex. Mapped areas are 5 to 80 acres.

Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is brownish yellow loamy sand to a depth of 32 inches. The

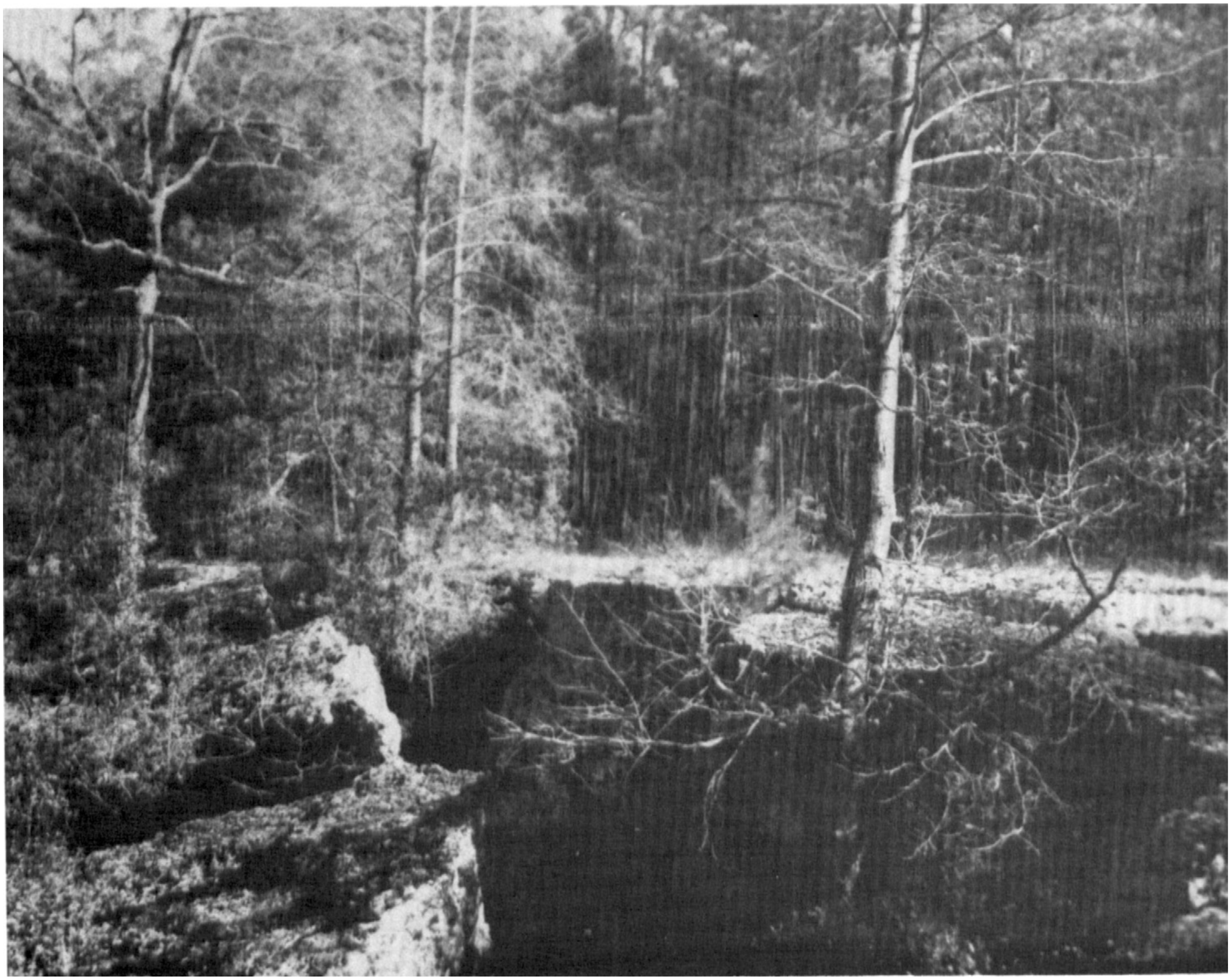


Figure 6.—Rock outcrop in an area of Esto-Rock outcrop complex, 5 to 12 percent slopes. Rock outcrop severely limits most uses.

subsoil is predominantly sandy clay loam to a depth of 80 inches or more. The upper part is mainly yellowish brown, the middle part is yellowish brown and has strong brown mottles, and the lower part is yellowish brown and has strong brown, red, and light gray mottles. Content of plinthite is 5 percent or more below a depth of 40 inches. Nodules of ironstone are throughout most of the subsoil.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper part of the subsoil and slow in the lower part. The available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Bonifay, Dothan, and Stilson soils. Also included in mapping are some areas of soils that have 5 to 15 percent nodules of ironstone in the upper part of the soil.

This Fuquay soil is moderately suited to field crops, hay, and pasture because of low available water capacity (fig. 7). Returning crop residue to the soil helps overcome this limitation. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained.

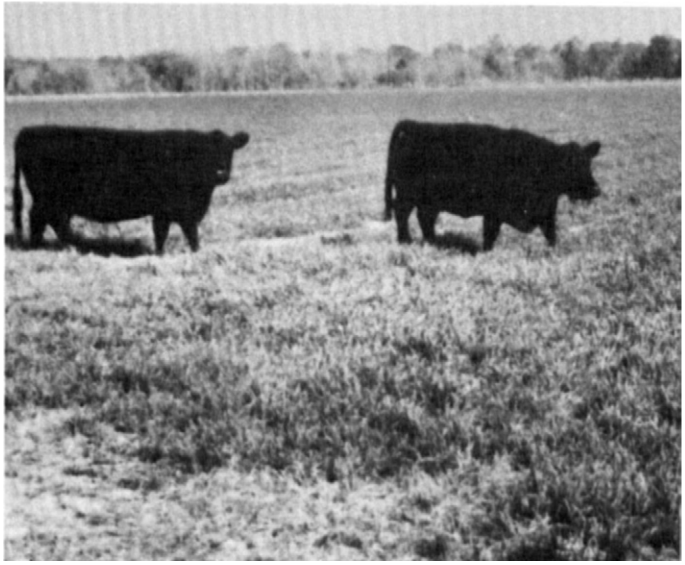


Figure 7.—Rye on Fuquay loamy sand, 1 to 5 percent slopes. Although the low available water capacity limits growth, the rye on this soil provides some winter grazing.

Loblolly pine, slash pine, and longleaf pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. This limitation can be overcome by special design and installation. Because it is too sandy, this soil is moderately suited to recreational development.

This soil is in capability subclass IIs and woodland suitability group 3s.

KeC—Kershaw coarse sand, 2 to 8 percent slopes. This excessively drained, very gently sloping and gently sloping soil is on broad dunelike ridges on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 10 to 200 acres.

Typically, the soil is coarse sand throughout. The surface layer is dark grayish brown 3 inches thick. The underlying material extends to a depth of 90 inches or more. The upper part is light yellowish brown and has brown mottles, the middle part is brownish yellow, and the lower part is very pale brown and has brownish yellow mottles.

This soil is very low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is very rapid, and the available water capacity is very low. Tilth is good. The root zone is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Blanton soils.

This Kershaw soil is not suited to and rarely used for field crops because of the very low available water capacity. It is moderately suited to hay and pasture if carefully managed.

Most pine trees, except sand pine, are poorly suited to this soil. Because this soil has a very low available water capacity, seedling mortality is a concern. Leaving additional seed trees or leaving more basal areas in shelterwood cuts generally helps increase seed production. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitations.

This soil is well suited to most urban uses. However, seepage is a limitation for most sanitary facilities. Because this soil is too sandy, it is poorly suited to recreational development.

This soil is in capability subclass VIIs and woodland suitability group 5s.

KJ—Kinston and Johnston soils, frequently flooded. This map unit consists of poorly drained and very poorly drained, nearly level soils on flood plains of the larger streams of the Southern Coastal Plain. It consists of areas of Kinston sandy loam and areas of Johnston mucky loam that are closely associated in an irregular pattern. Because of present and predicted use, the soils were not separated in mapping. These soils are frequently flooded from midfall to late in spring. Some mapped areas have only one of the soils, and some have both. Slope is 0 to 2 percent. Mapped areas are 50 to 900 acres.

The map unit is about 55 percent Kinston soils, 40 percent Johnston soils, and 5 percent Pelham and Rigdon soils. The proportion of these soils varies within each mapped area. The Pelham and Rigdon soils are in smooth areas of uplands that do not flood.

Typically, Kinston soils have a dark grayish brown sandy loam surface layer 6 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is light brownish gray sandy loam, the middle part is light gray sandy clay loam, and the lower part light gray sandy loam.

Kinston soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout. Permeability and the available water capacity are moderate. The root zone is deep, except from midfall to late in spring when it is restricted by a water table at the surface or within a depth of 1 foot.

Typically, Johnston soils have a black mucky loam surface layer 36 inches thick. The underlying material extends to a depth of 65 inches or more. The upper part is dark grayish brown loamy sand, and the lower part is dark gray loamy sand.

Johnston soils are low in natural fertility and high in organic matter content. They are strongly acid or very strongly acid throughout. Permeability is moderately rapid in the thick surface layer and rapid in the underlying material. The root zone is deep, except from midfall to late in spring when it is restricted by a water table at the surface or within a depth of 1.5 feet or when this soil is ponded.

The soils in this map unit are mostly wooded. Loblolly pine and slash pine are well suited to these soils. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species generally increase survival of the seedlings.

The soils in this map unit are poorly suited to field crops, hay, pasture, and recreational development because of wetness and flooding. These limitations also severely limit urban uses. They can be overcome only by extensive flood control and drainage.

The soils in this map unit are in capability subclass VIw and woodland suitability group 1w.

Le—Leefield loamy sand. This somewhat poorly drained, nearly level soil is in smooth upland areas of the Atlantic Coast Flatwoods. Slope is 0 to 2 percent. Mapped areas are 10 to 100 acres.

Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is sand to a depth of 26 inches. It is pale yellow and has brownish yellow mottles and light gray sand grains. The subsoil is predominantly sandy clay loam to a depth of 62 inches or more. The upper part is yellow and has yellowish brown and light gray mottles, the middle part is pale yellow and has light gray and yellowish brown mottles, and the lower part is reticulately mottled light gray, yellowish brown, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 32 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is moderate. Tilth is good. The root zone is deep, except from late in fall to early in spring when it is restricted by a water table at a depth of 1.5 to 2.5 feet.

Included with this soil in mapping are a few small areas of Pelham and Stilson soils. Also included are wet areas, less than 3 acres, that are indicated by a wet spot symbol on the map.

This Leefield soil is moderately suited to field crops, hay, and pasture because of seasonal wetness. Drainage helps overcome this limitation.

Slash pine and loblolly pine are moderately suited to this soil. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified or special implements or by performing operations during the drier seasons. Drainage and reduction of competing plants generally increase survival of the seedlings.

This soil is moderately suited to most urban uses and recreational development because of wetness. Also, moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, these limitations can be overcome by special design and application.

This soil is in capability subclass IIw and woodland suitability group 3w.

Lu—Leefield-Urban land complex. This complex consists of areas of somewhat poorly drained Leefield soil and Urban land that are so intermingled they could not be mapped separately at the scale selected. It is on smooth, low lying uplands in the vicinity of Douglas, Georgia. Slope is 0 to 2 percent.

Leefield loamy sand makes up about 55 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsurface layer is sand to a depth of 26 inches. It is pale yellow and has brownish yellow mottles and light gray sand grains. The subsoil is predominantly sandy clay loam to a depth of 62 inches or more. The upper part is yellow and has yellowish brown and light gray mottles, the middle part is pale yellow and has light gray and yellowish brown mottles, and the lower part is reticulately mottled light gray, yellowish brown, and yellowish red. Content of plinthite is 5 percent or more below a depth of about 32 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is moderate. Tilth is good. The root zone is deep, except from late in fall to early in spring when it is restricted by a water table at a depth of 1.5 to 2.5 feet.

Urban land makes up about 35 percent of each mapped area. Most areas are shopping centers, schools, churches, parking lots, industrial sites, streets, commercial buildings, and private dwellings. The soils have been altered by cutting, filling, and shaping.

Included in mapping are small areas of Pelham and Stilson soils.

The Leefield soil is moderately suited to most urban uses and recreational development because of wetness. Also, moderately slow permeability in the lower part of the subsoil limits the use of Leefield soil for septic tank absorption fields. In most places, these limitations can be overcome by special design and installation. Unless the Leefield soil is drained, the plants commonly used for landscaping and home vegetable gardens are somewhat limited.

This complex is not assigned to a capability subclass or woodland suitability group.

OB—Osier-Bibb association, frequently flooded. This map unit consists of poorly drained, nearly level soils on flood plains. It is mainly along the Alapaha River in the Atlantic Coast Flatwoods. This map unit is made up of Osier and Bibb soils that are closely associated in a regular repeating pattern. Generally, Bibb soil is in slack water areas, and Osier soil is nearer the stream channels. The soils were not separated in mapping; however, mapping was controlled adequately to be interpreted for the expected uses. This association is frequently flooded from late in fall to late in spring. Slope is 0 to 2 percent. Mapped areas are 25 to 500 acres.

The map unit is about 40 percent Osier soil, 35 percent Bibb soil, and 25 percent Ousley and Wahee soils. The proportion of these soils varies within each mapped area.

Typically, Osier soil has a dark grayish brown, loamy fine sand surface layer 10 inches thick. The underlying material extends to a depth of 80 inches or more. The upper part is grayish brown loamy fine sand, and the lower part is light gray sand that has yellow mottles.

Osier soil is low in natural fertility and organic matter content. It is very strongly acid to moderately acid throughout. Permeability is rapid, and the available water capacity is low. The root zone is deep, except from late in fall to midspring when it is restricted by a water table at the surface or within a depth of 1 foot or when the soil is flooded.

Typically, Bibb soil has a surface layer 16 inches thick. The upper part is very dark grayish brown loam, and the lower part is grayish brown fine sandy loam. The underlying material to a depth of 60 inches or more is sandy loam. The upper part is light brownish gray and has brownish yellow mottles, and the lower part is light gray.

Bibb soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout. Permeability and the available water capacity are moderate. The root zone is deep, except from late in fall to midspring when it is restricted by a water table at a depth of 0.5 foot to 1.5 feet or when the soil is flooded.

The soils in this association are mostly wooded. They are moderately suited to loblolly pine, slash pine, and sweetgum. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species generally increase survival of the seedlings.

These soils are poorly suited to field crops, hay and pasture, and recreational development because of wetness and the hazard of flooding. These limitations also severely limit urban uses. They can be overcome only by extensive flood control and drainage.

This association is in capability subclass Vw. Osier soil is in woodland suitability group 3w, and Bibb soil is in woodland suitability group 2w.

Ou—Ousley loamy fine sand, occasionally flooded. This moderately well drained, nearly level soil is on flood plains of the larger streams in the Atlantic Coast Flatwoods. It is occasionally flooded from late in fall to midspring. Slope is 0 to 2 percent. Mapped areas are 5 to 50 acres.

Typically, the surface layer is dark grayish brown and grayish brown loamy fine sand 8 inches thick. The subsurface layer is light gray fine sand to a depth of 16 inches. The underlying layers extend to a depth of 80 inches or more. The upper layer is pale yellow loamy fine sand that has light gray mottles, the middle layer is pale yellow coarse sand that has light gray mottles, and the lower layer is light gray coarse sand that has pale yellow mottles.

This soil is low in natural fertility and organic matter content. It is strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid, and the available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep, except from late in fall to midspring when it is restricted by a water table at a depth of 1.5 to 3.0 feet.

Included with this soil in mapping are a few small areas of Albany and Kershaw soils. Also included are wet soil areas, smaller than 3 acres; they are indicated by a wet spot symbol on the map.

This Ousley soil is poorly suited to field crops because of flooding and the low available water capacity. However, it is moderately suited to hay and pasture.

Loblolly pine and slash pine are moderately suited to this soil. Modified or special equipment or performing operations from midfall to late in spring helps overcome the equipment limitation. Improvement in seedling survival can be obtained by reducing plant competition through site preparation.

This soil is moderately suited to most recreational development mainly because of the hazard of flooding. This limitation also severely limits urban uses. This limitation can be overcome only by flood control.

This soil is in capability subclass IIIw and woodland suitability group 3w.

Pd—Pelham sand, ponded. This poorly drained, nearly level soil is in depressions on uplands mainly of the Atlantic Coast Flatwoods. It is perodically ponded from winter to midspring. Slope is 0 to 2 percent. Mapped areas are 5 to 100 acres.

Typically, the surface layer is very dark gray sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderate, and the available water capacity is low. The root zone is deep, except from winter to midspring when it is restricted by a water table at the surface or within a depth of 1.5 feet or when the soil is ponded.

Included with this soil in mapping are small intermingled areas of Bayboro and Surrency soils.

The locally grown pines are poorly suited to this Pelham soil. Ponding is the main limitation to equipment use and to seedling survival for other than the common water-tolerant trees.

This Pelham soil is poorly suited to most uses because of ponding. Unless outlets are available for drainage, this limitation is difficult to overcome.

This soil is in capability subclass Vw and woodland suitability group 4w.

Pe—Pelham loamy sand, occasionally flooded. This poorly drained, nearly level soil is in broad, smooth areas and near drainageways mainly in the Atlantic Coast Flatwoods. It is occasionally flooded from winter to midspring. Slope is 0 to 2 percent. Mapped areas are 10 to 200 acres.

Typically, the surface layer is very dark gray loamy sand 6 inches thick. The subsurface layer is sand to a depth of 33 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil is predominantly sandy clay loam to a depth of 60 inches or more. It is light brownish gray and has yellowish brown mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate, and the available water capacity is low. The root zone is deep, except from winter to midspring when it is restricted by a water table at a depth of 0.5 foot to 1.5 feet.

Included with this soil in mapping are small areas of Albany, Leefield, Rigdon, Sapelo, and Surrency soils. Also included is a soil that has a sandy clay subsoil.

Slash pine and loblolly pine are well suited to this Pelham soil. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species generally increase survival of the seedlings.

This soil is poorly suited to field crops, hay, pasture, and recreational development because of wetness and flooding. These limitations also severely restrict urban uses. They can be overcome only by extensive flood control and drainage.

This soil is in capability subclass Vw and woodland suitability group 2w.

Rg—Rigdon sand. This somewhat poorly drained, nearly level soil is in smooth areas on uplands mainly of the Atlantic Coast Flatwoods. Slope is 0 to 2 percent. Mapped areas are 5 to 40 acres.

Typically, the surface layer is predominantly very dark gray sand 7 inches thick. It is underlain by an organically stained layer to a depth of 11 inches. This layer is mottled dark brown and dark reddish brown sand. Below, to a depth of 38 inches, is pale yellow sand that has mainly strong brown, yellowish brown, and light gray mottles. The subsoil is sandy loam to a depth of 80 inches or more. It is light gray and has mainly yellowish brown, pale yellow, brownish yellow, and strong brown mottles.

This soil is low in natural fertility. Organic matter content is low throughout, except in the organically stained horizon it is medium. This soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the surface and subsurface layers; however, it is moderate in the organically stained layer and in the subsoil. The available water capacity is low. Tilth is good. Although the organically stained layer somewhat restricts root penetration, the root zone is deep, except from midwinter to midsummer when it is restricted by a water table at a depth of 1.5 to 2.5 feet.

Included with this soil in mapping are a few areas of Albany, Leefield, Pelham, and Sapelo soils.

This Rigdon soil is moderately suited to most commonly grown field crops, hay, and pasture mainly because of wetness. This limitation can be overcome by drainage. Also, the available water capacity is low and limits yields. Returning crop residue to the soil is effective in retaining moisture.

Slash pine and loblolly pine are well suited to this soil. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment use limitation can be overcome by using modified or special implements or by performing operations during the drier seasons. Drainage, reduction of competing plants, and the use of adapted species generally increase survival of the seedlings.

This soil is moderately suited to most urban uses because of wetness. Wetness can be reduced by drainage. This soil is poorly suited to recreational development because it is too sandy.

This soil is in capability subclass IIIw and woodland suitability group 2w.

Sa—Sapelo fine sand. This poorly drained, nearly level soil is in smooth areas on uplands mainly of the Atlantic Coast Flatwoods. Slope is 0 to 2 percent. Mapped areas are 10 to 50 acres.

Typically, the surface layer is very dark gray sand 4 inches thick. The subsurface layer is light gray fine sand to a depth of 11 inches. This is underlain, to a depth of 20 inches, by a weakly cemented sand layer that is mainly dark brown. Below, to a depth of 50 inches, is pale brown fine sand that has strong brown mottles. The subsoil to a depth of 70 inches or more is light gray sandy clay loam that has yellowish brown and red mottles.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate, and the available water capacity is low. Tilth is good. The weakly cemented layer restricts root penetration. Root penetration is also restricted by a water table at a depth of 0.5 foot to 1.5 feet from late in fall to midspring.

Included with this soil in mapping are small areas of Albany, Leefield, Pelham, and Rigdon soils. Also included in mapping are small areas of soils that have sandy clay loam at a depth of less than 40 inches and soils similar to the Sapelo soil except that they are sandy throughout.

This Sapelo soil is poorly suited to field crops, hay, and pasture because of wetness.

Loblolly pine and slash pine are moderately suited to this soil. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified or special equipment or by performing operations during the drier seasons. Drainage and reduction of competing plants generally increase survival of the seedlings.

This soil is poorly suited to most urban uses and recreational development mainly because of wetness.

This soil is in capability subclass IVw and woodland suitability group 3w.

StA—Stilson loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on broad, smooth uplands of the Atlantic Coast Flatwoods and the Southern Coastal Plain. Mapped areas are 5 to 40 acres.

Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsurface layer is pale yellow loamy sand to a depth of 24 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. The upper part is brownish yellow; the middle part is yellow and has light gray, yellowish brown, and yellowish red mottles; and the lower part is mottled light gray, yellowish brown, yellowish red, and yellow. Content of plinthite is 5 percent or more below a depth of 38 inches.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is moderate, and the available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep, except from late in fall to midspring when it is restricted by a perched water table at a depth of 2.5 to 3 feet.

Included with this soil in mapping are a few small areas of Dothan, Fuquay, and Leefield soils. Also included are wet areas, smaller than 3 acres, that are indicated by a wet spot symbol on the map.

This Stilson soil is moderately suited to field crops, vegetable crops, hay, and pasture because of wetness, and drainage is needed in most places. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained.

Slash pine and loblolly pine are well suited to this soil. However, seasonal wetness limits the use of conventional equipment. This limitation can be overcome by using modified or special equipment or performing operations during the drier seasons.

This soil is well suited to most urban uses and recreational development. However, the seasonal high water table limits the use of this soil for septic tank absorption fields. This limitation can be overcome by special design and drainage.

This soil is in capability subclass IIw and woodland suitability group 2w.

Su—Surrency loamy sand, ponded. This very poorly drained, nearly level soil is in shallow, oval depressions on uplands of the Atlantic Coast Flatwoods. It is periodically ponded from late in fall to midspring. Slope is 0 to 1 percent. Mapped areas are 10 to 150 acres.

Typically, the surface layer is 13 inches thick. The upper part is black loamy sand, and the lower part is very dark gray sand. The subsurface layer is light brownish gray sand to a depth of 36 inches. The subsoil is mainly sandy clay loam to a depth of 62 inches or more. It is light brownish gray and has yellowish brown and gray mottles.

This soil is low in natural fertility and medium in organic matter content. It is extremely acid or very strongly acid throughout. Permeability is rapid in the surface layer and subsurface layer and moderate in the subsoil. The available water capacity is low. The root zone is deep, except from late in fall to midspring when it is restricted by a water table at the surface or within a depth of 0.5 foot or when the soil is ponded.

Included with this soil in mapping are small areas of Pelham and Sapelo soils.

Blackgum, sweetgum, and pondcypress are the common trees on this Surrency soil. Ponding is the main limitation to equipment use and to seedling survival for other than the common water-tolerant trees.

This Surrency soil is poorly suited to most uses because of ponding. Unless outlets are available for drainage, this limitation is difficult to overcome.

This soil is in capability subclass VIw and woodland suitability group 4w.

TfA—Tifton loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on ridgetops on uplands of the Southern Coastal Plain. Mapped areas are 5 to 80 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is sandy clay loam, and the lower part is sandy clay. It is yellowish brown throughout; the lower part is also mottled red and gray. Content of plinthite is 5 percent or more below a depth of about 30 inches. Nodules of ironstone are on the surface and in the surface layer and the upper part of the subsoil.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability and the available water capacity are moderate. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Carnegie, Clarendon, Dothan, and Fuquay soils. Also included are wet areas, smaller than 3 acres, that are indicated by a wet spot symbol on the map.

This Tifton soil is well suited to field crops, hay, and pasture. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help maintain organic matter and conserve moisture.

Loblolly pine and slash pine are well suited to this soil. There are no limitations for woodland use or management.

This soil is well suited to most urban uses and recreational development. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability class I and woodland suitability group 2o.

TfB—Tifton loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is mainly on ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 5 to 75 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil extends to a depth of 65 inches or more. The upper and middle parts are mainly sandy clay loam, and the lower part is sandy clay. The upper part is yellowish brown, the middle part is yellowish brown and brownish yellow and has mainly strong brown and light yellowish brown mottles, and the lower part is mottled yellowish brown, red, and light gray. Content of plinthite is 5 percent or more below a depth of about 35 inches. Nodules of ironstone are on and in the surface layer and in the upper part of the subsoil.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability and the available water capacity are moderate. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Carnegie, Clarendon, Dothan, and Fuquay soils. Also included are wet areas, smaller than 3 acres, that are indicated by a wet spot symbol on the map and areas that have a few shallow gullies and rills.

This Tifton soil is well suited to field crops, hay, and pasture. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes in the cropping system, terraces, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no limitations for woodland use, management practices performed on the contour keep soil erosion at a minimum.

This soil is well suited to most urban uses and recreational development. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability subclass IIe and woodland suitability group 2o.

TuB—Tifton-Urban land complex, 2 to 5 percent slopes. This complex consists of areas of well drained Tifton soil and Urban land that are so intermingled they could not be mapped separately at the scale selected. It is on very gently sloping ridgetops and hillsides on uplands of the Southern Coastal Plain. Mapped areas are 15 to 200 acres.

Tifton loamy sand makes up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil extends to a depth of 65 inches or more. The upper part is predominantly sandy clay loam, and the lower part is sandy clay. The upper part is yellowish brown, the middle part is yellowish brown and brownish yellow and has mainly strong brown and light yellowish brown mottles, and the lower part is mottled yellowish brown, red, and light gray. Content of plinthite is 5 percent or more below a depth of about 35 inches. Nodules of ironstone are on the surface and in the surface layer and in the upper part of the subsoil.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability and the available water capacity are moderate. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Urban land makes up about 40 percent of each mapped area. Most areas are shopping centers, schools, churches, parking lots, industrial sites, streets, commercial buildings, and private dwellings. The soils have been altered by cutting, filling, and shaping.

Included in mapping are small areas of Carnegie, Cowarts, and Clarendon soils.

Tifton soil is well suited to most urban uses and recreational development. However, moderate permeability in the subsoil limits this soil for septic tank absorption fields. This limitation can be overcome by special design and installation. Home vegetable gardens and the common plants used in landscaping grow well. There is a moderate hazard of erosion prior to establishing permanent plant cover. Tillage operations across the slope and winter cover crops help to control erosion.

This complex is not assigned to a capability subclass or woodland suitability group.

TyD—Troup-Ailey coarse sands, 8 to 17 percent slopes. This complex consists of areas of well drained Troup and Ailey soils that are so intermingled that they could not be mapped separately at the scale selected. It is on strongly sloping and moderately steep hillsides on uplands of the Southern Coastal Plain. Mapped areas are 10 to 25 acres.

Troup coarse sand makes up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown coarse sand 4 inches thick. The subsurface layer is sand to a depth of 50 inches and loamy sand to a depth of 60 inches. The upper part is light yellowish brown, the middle part is very pale brown, and the lower part is yellowish red. The subsoil extends to a depth of 80 inches or more. The upper few inches are sandy loam, and the rest of the subsoil is sandy clay loam. It is mainly red throughout, but the lower part also has yellowish brown mottles.

This Troup soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Ailey coarse sand makes up about 25 percent of each mapped area. Typically, the surface layer is dark grayish brown coarse sand 5 inches thick. The subsurface layer is light yellowish brown coarse sand to a depth of 26 inches. The subsoil is predominantly sandy clay loam to a depth of 50 inches. It is firm, brittle, and slightly hard below a depth of 30 inches. The upper part is brownish yellow, the middle part is brownish yellow and has strong brown and red mottles, and the lower part is yellowish brown and has strong brown, red, and gray mottles. The underlying material extends to a depth of 70 inches or more. It is mottled brownish yellow, red, and light gray sandy clay loam and coarse sandy loam. This material is hard if dry and firm if moist.

This Ailey soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the upper part of the soil and slow in the lower part. The available water capacity is low. Tilth is good. The effective root zone is limited because of the underlying dense layer.

Included in this complex in mapping are small areas of Fuquay and Bonifay soils.

This complex is poorly suited to field crops, hay, and pasture because of low available water capacity and slope.

Slash pine and longleaf pine are moderately suited to this complex. Because the soils in this complex have low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

The soils in this complex are moderately suited to most urban uses because of slope. In addition, slow permeability in places limits the use for septic tank absorption fields. Also, seepage limits most sanitary facilities. Because it is too sandy, these soils are poorly suited to recreational development.

This complex is in capability subclass VIs. Troup soil is in woodland suitability group 3s, and Ailey soil is in woodland suitability group 4s.

Wa—Wahee fine sandy loam, frequently flooded. This somewhat poorly drained, nearly level soil is on terraces mainly near the Alapaha River. It frequently is flooded for brief periods from late in fall to midspring. Slope is 0 to 2 percent. Mapped areas are 5 to 60 acres.

Typically, the surface layer is dark grayish brown fine sandy loam 6 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 10 inches. The subsoil extends to a depth of 60 inches. The upper few inches are yellowish brown sandy clay loam that has a few grayish mottles; the middle part is light gray sandy clay that has strong brown, brown, and yellowish brown mottles; and the lower part is light brownish gray sandy clay that has yellowish brown mottles. The underlying material to a depth of 80 inches or more is light brownish gray sandy loam that has light yellowish brown and yellowish brown mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is slow, and the available water capacity is moderate. The root zone is deep, except from late in fall to early in spring when it is restricted by a water table at a depth of 0.5 foot to 1.5 feet.

Included with this soil in mapping are areas of Bibb, Osier, and Ousley soils.

This Wahee soil is poorly suited to field crops because of wetness and flooding. However, it is moderately suited to hay and pasture.

Slash pine, loblolly pine, sweetgum, and yellow-poplar are well suited to this soil. However, seasonal wetness limits the use of conventional equipment. This limitation can be overcome by using modified or special equipment or by performing operations during the drier seasons. Drainage and the use of adapted species generally increase survival of the seedlings.

Because of wetness and flooding, this soil is poorly suited to most recreational development. Wetness and the hazard of flooding also severely limit urban uses. These limitations can only be overcome by flood control and drainage.

This soil is in capability subclass IVw and woodland suitability group 2w.

WcB—Wicksburg loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Mapped areas are 10 to 175 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsurface layer extends to a depth of 24 inches. The upper part is light yellowish brown sand, and the lower part is pale yellow loamy sand. The subsoil extends to a depth of 70 inches or more. The upper part is brownish yellow sandy clay loam, the middle part is brownish yellow sandy clay that has red mottles, and the lower part is brownish yellow clay that has red and light gray mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the sandy surface and subsurface layers and slow in the subsoil. The available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few areas of Ailey, Bonifay, Esto, and Troup soils.

This Wicksburg soil is moderately suited to field crops, hay, and pasture because of low available water capacity. Returning crop residue to the soil helps overcome this limitation. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained.

Slash pine and loblolly pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, slow permeability in the subsoil limits its use for septic tank absorption fields. This soil is moderately suited to most recreational development because of slow permeability in the subsoil.

This soil is in capability subclass IIs and woodland suitability group 3s.

WcC—Wicksburg loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on hillsides on uplands of the Southern Coastal Plain. Slopes are irregular and convex. Mapped areas are 10 to 120 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsurface layer is loamy sand to a depth of 24 inches. The upper part is light yellowish brown, and the lower part is pale yellow. The subsoil extends to a depth of 72 inches. The upper part is mainly brownish yellow sandy clay loam, the middle part is brownish yellow sandy clay and clay that has red and light gray mottles, and the lower part is coarsely mottled brownish yellow, red, and light gray sandy clay.

This soil is low in natural fertility and organic matter content. It is strongly acid throughout, except for the surface layer in areas that have been limed. Permeability is rapid in the sandy surface and subsurface layers and slow in the subsoil. The available water capacity is low. Tilth is good, and this soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are Ailey, Bonifay, Esto, and Troup soils.

This Wicksburg soil is moderately suited to field crops, hay, and pasture because of low available water capacity. Returning crop residue to the soil helps overcome this limitation.

Slash pine and loblolly pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting procedures, adapted drought-hardy species, and the reduction of competing plants generally increase survival of the seedlings. Because of the sandiness of the soil, use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons helps overcome the equipment limitation.

This soil is well suited to most urban uses. However, slow permeability in the subsoil limits its use for septic tank absorption fields. This soil is moderately suited to most recreational development, because of slow permeability in the subsoil.

This soil is in capability subclass IIIs and woodland suitability group 3s.

Important Farmland

This section gives the extent and location of the land in the survey area that is important for producing food, feed, fiber, forage, and oilseed crops.

The map units that make up *prime farmland* and *additional farmland of statewide importance* and the acreage of each are listed in table 5. This list does not constitute a recommendation for a particular land use. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Detailed soil map units."

Prime Farmland

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has adequate soil quality, growing season, and moisture supply to economically produce sustained high crop yields if acceptable farming methods are used. Prime farmland produces the highest yields with minimal inputs of energy and money, and farming it results in the least damage to the environment. Prime farmland is of major importance in satisfying the nation's short- and long-range needs for food and fiber. The supply of high quality farmland is limited, and the U.S. Department of Agriculture recognizes that all levels of government, as well as individuals, must encourage and facilitate the use of prime farmland with wisdom and foresight.

Prime farmland is either currently used for producing food or fiber or is available for this use. Urban or built-up land, water areas, or areas used for other purposes that preclude later use of the soils for farmland are not included. Urban or built-up land is any contiguous unit of land of 10 acres or more that is used for residences, industrial sites, commercial sites, construction sites, institutional sites, public administration sites, railroad yards, small parks, cemeteries, airports, golf courses, sanitary landfills, sewage-treatment plants, water-control structures and spillways, shooting ranges, and so forth.

Prime farmland usually has an adequate and dependable supply of moisture from precipitation or irrigation. It has favorable temperature and growing season and acceptable soil reaction. It has few or no rocks and is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for long periods and is not flooded during the growing season. Slope ranges from 0 to 5 percent. For further information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

In the survey area, about 142,425 acres, or 18 percent of the survey area, meets the soil requirements for prime farmland (see table 5).

Additional Farmland of Statewide Importance

A recent trend in land use in some parts of the county has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on additional farmland of statewide importance.

In the survey area, about 316,000 acres is additional farmland of statewide importance (see table 5). This farmland consists of soils that are important to the agricultural resource base in the county but that do not meet the requirements for prime farmland. These soils are more erodible, droughty, seasonally wet, difficult to cultivate, and usually are less productive than prime farmland soils. The slope is 8 percent or less.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used by decision makers to adjust land uses to the limitations and suitabilities of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; for woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the suitabilities and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

James E. Dean, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Controlling erosion, removing excess water, and maintaining good tilth and productivity are the most common concerns in the management of farmland in the survey area.

Many of the soils in the survey area, such as Carnegie, Cowarts, Esto, and Sunsweet soils, are susceptible to erosion. The degree of susceptibility depends on the erodibility of the soil, the frequency and intensity of rainfall, the steepness and length of slopes, and the management of crop residue as a mulch.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost, and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Carnegie and Esto soils. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps plant cover on the soil for extended periods aids in maintaining the productive capacity of the soils. On livestock farms, which require pasture and hay, the grass forage crops in the cropping system reduce erosion on sloping land and improve tilth for the following crop.

Using conservation tillage systems that leave adequate amounts of crop residue on the surface increases infiltration and reduces runoff and erosion. This practice can be used on most soils in the survey area. No-till for corn and soybeans, use of which is increasing, reduces erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope, reduce runoff, and control concentrated water flows. They are most practical on well drained, very gently sloping or gently sloping soils that have smooth and convex slopes. Carnegie, Cowarts, Dothan, Esto, and Tifton soils are suitable for terraces in most places.

Contouring is a widely used erosion control practice in the survey area. It is most effective on soils that have smooth, relatively short, uniform slopes, including most areas of the very gently sloping or gently sloping Carnegie, Cowarts, Dothan, Esto, and Tifton soils.

Soil blowing is a concern on the sandy soils. Soil blowing can damage these soils and the young plants growing on them if the soils are dry and have little surface mulch. Maintaining plant cover or surface mulch or keeping the surface rough through proper tillage minimizes soil blowing. Windbreaks effectively reduce soil blowing in broad open fields.

Information on the design of erosion control practices for each kind of soil is available from local offices of the Soil Conservation Service.

Excess water is the main limitation on soils that are not well drained. The type of drainage system needed depends on the amount of water in the soils and the kinds of crops grown. The design of both surface and subsurface drainage systems varies with the kind of soil. After the water is controlled, only practices that help to maintain productivity and good tilth are needed. Erosion is not a serious problem on these soils in most places.

Soil fertility is naturally low in most soils in the survey area. However, these soils respond well to fertilization and other good management. The soils in depressions on uplands, along drainageways, and on flood plains, such as Bayboro, Bibb, Chastain, Dasher, Johnston, Kinston, Osier, Pelham, and Surrency soils, commonly have more organic matter than most better drained soils on uplands or higher lying stream terraces.

The soils are naturally acid. If the soils used for cultivated crops and pasture have never been limed, applications of ground limestone are needed to raise the pH level sufficiently for good growth of legumes and other crops that grow on nearly neutral soils. Available phosphorus and potash levels are naturally low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of loamy sand or sand that is low in content of organic matter. Tilth is generally good except on the eroded Carnegie, Cowarts, and Sunsweet soils, in which the subsoil is exposed. Regular additions of crop residue, manure, and other organic material help to improve or maintain tilth.

Fall plowing is generally not a good practice in the survey area. Most of the cropland consists of soils that are subject to damaging erosion if plowed in the fall.

Some of the field crops suited to the soils and climate of the survey area are corn, soybeans, peanuts, and tobacco. Wheat, rye, and oats are the main small grains. Improved bermudagrass and bahiagrass are common pasture grasses.

Improved bermudagrass and bahiagrass are well suited to moderately well drained and well drained, loamy or clayey soils, such as Clarendon, Stilson, Dothan, and Tifton soils. Somewhat excessively drained Cainhoy soils and well drained Ailey and Bonifay soils have low available water capacity and are best suited to improved bermudagrass. Somewhat poorly drained Leefield soils and poorly drained Pelham soils are seasonally wet and are best suited to bahiagrass.

Specialty crops grown commercially in the survey area are vegetables and blueberries. Pecans also are important.

Soils that have good natural drainage and warm up early in the spring are especially well suited to many vegetables and small fruits. In the survey area, these are Carnegie, Cowarts, Dothan, and Tifton soils. If irrigated, Blanton, Bonifay, and Fuquay soils are also well suited to vegetables and small fruits. Crops can generally be planted and harvested earlier on these soils than on the other soils in the survey area.

If excess water is removed, the somewhat poorly drained Leefield and Rigdon soils and the moderately well drained Clarendon and Stilson soils are well suited to a wide range of vegetables.

Most of the well drained soils in the survey area are suitable for orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor generally are poorly suited to early vegetables, small fruits, and orchards. Latest information and suggestions for growing specialty crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that insures the smallest possible loss. Fertilizer needs of specific crops on specific soils can be determined by soil tests. General fertilizer recommendations for field crops are also available *(3)*.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production. No capability class VIII soils are in this survey area.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is droughty.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w*,.

The acreage of soils in each capability class and subclass is shown in table 7. The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Gary L. Tyre, forester, Soil Conservation Service, helped prepare this section.

Atkinson, Bacon, and Coffee Counties are among the counties in southeast Georgia that make up one of the most significant timber-growing regions in the world. Forests consist of over 500,000 acres in these counties, and woodland is the predominant land use. About two-thirds of the soils are in longleaf-slash pine or loblolly-shortleaf pine. Another 18 percent is in bottom land oak-gum-cypress. The rest is in mixed oak-pine or oak-hickory. Recent information suggests forest acreage in the area is decreasing. Most of the reduction is in hardwoods, but some of it is in pine.

Ownership patterns in the survey area are similar to most other places in the state. The majority of the forest holdings are small and privately held. This kind of ownership accounts for 77 percent of the land in the counties; forest industry owns 20 percent. As in most parts of the state, the most significant management problems are on the smaller private holdings. The greatest potential for production also is on private holdings.

Forests in these counties are on a variety of soils. Bottom land hardwoods are primarily on the Bibb, Chastain, Johnston, Kinston, Osier, and Tawcaw soils. Although they are very productive, these soils present difficult problems in pine management. Because of the wet conditions associated with these soils, equipment use in harvesting is limited and high seedling mortality rates are typical.

Somewhat poorly drained Albany, Leefield, and Rigdon soils and poorly drained Pelham soils make up parts of these counties. Most of these soils are very productive and suitable for management of slash and loblolly pine. However, they are associated with equipment restrictions and high seedling mortality.

Moderately well drained Blanton soils and poorly drained Sapelo soils are somewhat less productive than those soils noted previously. Very low available water capacity, equipment restrictions, or seedling mortality are the main management concerns.

Though not extensive, Kershaw soils make up part of each county. These soils are low in productivity because they are sandy and excessively drained.

Among the better soils in Atkinson, Bacon, and Coffee Counties are Carnegie, Clarendon, Fuquay, and Tifton soils. These are generally well drained soils that are relatively high in productivity with no significant management problems.

Other significant soils in these counties include Ailey, Bonifay, Esto, and Stilson soils. Ailey and Bonifay soils are mainly sandy and require some care in management. Bonifay soils are somewhat more productive than Ailey soils. Esto soils are moderately high in productivity and have no management limitations. Stilson soils are the most productive of these soils, but they are wet and require care in management.

Information in this section can provide a useful tool in planning conservation practices and arriving at investment and management decisions. Table 8 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol (woodland suitability) for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w* indicates excessive water in or on the soil, and *s* indicates sandy texture. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w and s.

In table 8, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in a well-managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

Recreation

Atkinson, Bacon, and Coffee Counties provide many possibilities for recreation. Fishing and boating are available on the Alapaha, Ocmulgee, and Stilla Rivers, Big Satilla Creek and other large creeks, farm ponds, resort areas, and small streams. The suitability of the soil is very important if such areas as camp sites, picnic areas, playgrounds, parks, paths, trails, golf courses, and nature study areas are to be developed.

In table 9, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Louis Justice, biologist, Soil Conservation Service, helped prepare this section.

Atkinson, Bacon, and Coffee Counties are largely rural with fair wildlife habitat in predominantly cropland and woodland settings. Fish and wildlife are important for recreation and contribute to the local economy.

About 66 percent of the survey area is forested; about 30 percent is in row crops and pasture. Forests in these counties are about 27 percent hardwoods, 51 percent pine, and 22 percent a mixture of pine-hardwood.

Major plants of importance to terrestrial wildlife include greenbrier, bush and annual lespedezas, panicgrass, croton, ragweed, partridge pea, paspalum, tickclover, and sumac. Overstory and understory woodland plants of importance are sweetgum, oak, hackberry, buttonbush, and maple. Domestic plants of importance to wildlife include peanuts, corn, soybeans, bahiagrass, and small grains.

Cropland and pastureland, interspersed with pine plantations and hardwood forests, provide habitat for white-tailed deer, mourning dove, raccoons, gray squirrel, opossum, fox, and other wildlife. Rabbit and bobwhite quail populations are good in areas which have suitable food and cover.

Unmanaged pasture, old fields, young pine plantations, and thinned woodlands produce numerous native woody and herbaceous plants important as food and cover for white-tailed deer, rabbit, fox, quail, and other wildlife species.

Land use trends toward extensive clearing of woodland for row crops and the introduction of irrigation are affecting fish and wildlife populations. Removal of crop residue from fields, removal of hedgerows and odd areas, and increased siltation have an adverse effect on fish and wildlife habitat. Many of the chemicals used to increase agricultural production have severe effects upon small birds and animals. Most seriously affected game species is quail.

Restoring hedgerows, field borders, windbreaks, and odd areas in fields will improve habitat for wildlife. Also, the capability of pine plantations to support wildlife can be improved by prescribed burning and retaining mast-producing trees, such as oaks.

Wetland habitats support a variety of furbearers, including otter, beaver, bobcat, and raccoon, and waterfowl. The best wetland habitat available is bottomland hardwoods along the Ocmulgee, Satilla, and Alapaha Rivers, Hurricane and Seventeen Mile Creeks, and within many Carolina bays and numerous beaver ponds.

Important fresh water sport fish in these counties include largemouth bass, crappie, channel catfish, bluegill, and redear sunfish. Anadromous sport fish species are striped bass and shad.

Because of the fragile habitat requirements of fish, special efforts are needed to restrict and retard both point and nonpoint sources of water pollution in these counties.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are bahiagrass, lovegrass, bermudagrass, lespedezas, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, lespedezas, goldenrod, partridge pea, beggarweed, three-awn grasses, and asters.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are plum, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, and cedar.

Wetland plants are annual and perennial, wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrel, fox, raccoons, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, and beaver.

Engineering

John P. McEvoy, Jr., agricultural engineer, Soil Conservation Service, assisted in preparing this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations must be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to: evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by bedrock or a very firm dense layer, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, bedrock, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Bedrock, a high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, bedrock, and the available water capacity in the upper 40 inches, affect plant growth. Flooding, wetness, slope, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, bedrock, and flooding affect absorption of the effluent. Bedrock interferes with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, bedrock, flooding, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, and bedrock can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, highly organic layers, and soil reaction affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by a high water table and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, or slopes of 15 to 25 percent. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, or a high shrink-swell potential. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil) and the thickness of suitable material. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, and bedrock.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the presence of bedrock. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or organic matter. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to ponding, slope, susceptibility to flooding, and subsidence of organic layers. Excavating and grading and the stability of ditchbanks are affected by the hazard of cutbanks caving. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, permeability, erosion hazard, and slope. The construction of a system is affected by bedrock. The performance of a system is affected by the depth of the root zone, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, and bedrock affect the construction of terraces and diversions. Restricted permeability adversely affects maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness, slope, and bedrock affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 20.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas *(7)*. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 20.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area, or from nearby areas, and on field examination.

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Dual hydrologic soil groups. Some of the soils in table 17 that have a high water table are shown with dual hydrologic groups, for example A/D or B/D. This means that under natural conditions the soils fit in hydrologic group D; however, by artificial methods the water table can be lowered to such a depth that the soils fit in hydrologic groups A or B. Onsite investigation is needed to determine the hydrologic group of the soil for a particular location, since there are different degrees of drainage or water table control.

Flooding, the temporary inundation of an area, is caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs, on the average, no more than once in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Rock outcrop makes up about 40 percent of the Esto-Rock outcrop complex, 5 to 12 percent slopes. It is the *only map unit in the survey area that has bedrock within a depth of 5 feet. The bedrock outcrop is hard sandstone or claystone, and blasting or special equipment generally is needed for excavation.*

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Physical and Mineralogical Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in table 18 and the results of mineralogical analysis in table 19. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the University of Georgia, College of Agriculture, Agricultural Experiment Stations.

Determinations for the physical analysis were made using the hydrometer method on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an oven-dry basis. Determinations for mineralogical analysis were made using the x-ray defraction and DTA (Differential Thermal Analysis).

Engineering Index Test Data

Table 20 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by the Office of Materials and Research, Georgia Department of Transportation.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM); Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM); Volume change (Abercrombie)—Georgia Highway Standard.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(8)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning flood plains, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual (6)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (8)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Ailey Series

The Ailey series consists of well drained soils that formed in sandy and loamy marine sediment. These soils have rapid permeability in the upper part of the soil and slow permeability in the lower part. Ailey soils are predominantly on uplands of the Southern Coastal Plain. Slope is 2 to 17 percent.

Ailey soils are associated with Bonifay, Esto, Troup, and Wicksburg soils. The associated soils do not have dense properties in the subsoil. Esto soils are not arenic; Esto and Wicksburg soils have a clayey subsoil. Bonifay and Troup soils are grossarenic; also, Bonifay soils contain plinthite.

Typical pedon of Ailey loamy coarse sand, 2 to 8 percent slopes; 3.0 miles west on a county road from Pridgen, 3,500 feet north on a dirt road, 200 feet east of the road; in Coffee County:

A—0 to 6 inches; dark grayish brown (10YR 4/2) loamy coarse sand; weak fine granular structure; very friable; 5 percent quartz gravel; many fine roots; very strongly acid; clear smooth boundary.

E—6 to 28 inches; light yellowish brown (10YR 6/4) loamy coarse sand; single grained; loose; 10 percent quartz gravel; few fine and medium roots; very strongly acid; clear wavy boundary.

Bt1—28 to 30 inches; brownish yellow (10YR 6/8) coarse sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; very strongly acid; clear wavy boundary.

Bt2—30 to 36 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and red (2.5YR 4/6) mottles; weak fine subangular blocky structure; slightly hard, friable, slightly sticky; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btx—36 to 44 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6), light gray (10YR 7/1), and red (2.5YR 4/8) mottles; 65 percent moderate medium subangular blocky structure and 35 percent strong coarse platy; blocky peds are firm and platy peds are hard and brittle; few quartz pebbles; very strongly acid; gradual wavy boundary.

2C—44 to 70 inches; mottled brownish yellow (10YR 6/6), red (2.5YR 4/6), and light gray (10YR 7/1) sandy clay loam and coarse sandy loam; massive; hard if dry and firm if moist; few quartz pebbles; very strongly acid.

Thickness of the solum is 44 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. The sandy epipedon is 24 to 34 inches thick.

The A horizon or Ap horizon is 5 to 9 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loamy coarse sand or coarse sand. The E horizon is 16 to 31 inches thick. It has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The BE horizon, if present, is 3 to 6 inches thick. The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 or 8. It is sandy loam or sandy clay loam. The Btx horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8. Some pedons have strong brown, red, light gray, and yellowish brown mottles.

The 2C horizon commonly is mottled brownish, yellowish, reddish, and grayish. Some pedons have hue of 5YR to 10YR, value of 5 to 6, and chroma of 4, 6, or 8; or hue of 2.5YR, value of 4 to 6, and chroma of 4, 6, or 8; or hue of 5YR to 10YR, value of 4, and chroma of 4 or 6. Also these pedons have grayish, brownish, or reddish mottles.

Albany Series

The Albany series consists of somewhat poorly drained soils that formed in sandy and loamy marine sediment. These soils have rapid permeability in the surface and subsurface layers and moderate permeability in the subsoil. Albany soils are on uplands of the Atlantic Coast Flatwoods. The water table is at a depth of 1.0 foot to 2.5 feet from late in fall to early in spring. Slope is 0 to 2 percent.

Albany soils are associated with Blanton, Bonifay, Fuquay, and Leefield soils. Well drained Bonifay and Fuquay soils and somewhat poorly drained Leefield soils contain plinthite. Also, Fuquay and Leefield soils are arenic. Blanton soils are moderately well drained.

Typical pedon of Albany sand, 0 to 2 percent slopes; 0.6 mile east of Hurricane Creek on Georgia Highway 32, 1.3 miles north on a county-maintained road, 0.2 mile northwest on a dirt road, 900 feet west of the road; in Bacon County:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; common fine roots; strongly acid; abrupt smooth boundary.

E1—7 to 22 inches; light yellowish brown (2.5Y 6/4) sand; few fine distinct brownish yellow (10YR 6/6) mottles; single grained; loose; common fine roots; strongly acid; clear wavy boundary.

E2—22 to 48 inches; pale yellow (2.5Y 7/4) sand; common medium distinct light gray (10YR 7/1) and brownish yellow (10YR 6/8) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

Bt—48 to 55 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct light gray (10YR 7/1) and strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable; sand grains coated and bridged with clay; few small slightly hard iron concretions; very strongly acid; gradual wavy boundary.

Btg—55 to 80 inches; light gray (10YR 7/2) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/6) mottles, and few medium prominent dark red (2.5YR 3/6) mottles; moderate medium subangular blocky structure; friable; few faint clay films in pores; sand grains coated and bridged with clay; few light gray lenses of sand; very strongly acid.

Thickness of the solum is 80 to 90 inches. The soils are very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. The sandy epipedon is 40 to 58 inches thick.

The A horizon or Ap horizon is 6 to 10 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The E horizon is 34 to 50 inches thick. It has hue of 10YR, value of 5 to 8, and chroma of 4, 6, or 8; hue of 2.5Y, value of 5 to 8, and chroma of 4 or 6; or hue of 2.5Y, value of 6 to 8, and chroma of 8. It has few or common grayish, yellowish, or brownish mottles.

The BE horizon, if present, has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 4 or 6. Mottles are grayish, yellowish, reddish, and brownish. The Bt horizon has the same range of colors as the BE horizon. In some pedons, the Btg horizon does not have a matrix color and is mottled reddish, yellowish, brownish, and grayish. The Bt and Btg horizons are sandy loam or sandy clay loam.

Bayboro Series

The Bayboro series consists of very poorly drained, slowly permeable soils that formed in clayey marine or fluvial sediment. Bayboro soils are mainly in the Atlantic Coast Flatwoods. This soil is ponded, or the water table is at a depth of less than 1 foot from late in fall to late in spring. Slope is less than 1 percent.

Bayboro soils are associated with Pelham and Surrency soils. The associated soils have less than 35 percent clay in the subsoil. Poorly drained Pelham soils do not have an umbric epipedon. Also, Pelham and Surrency soils are arenic.

Typical pedon of Bayboro loam, ponded; 1.3 miles west of the Central Georgia Railroad at Mora, Georgia, on a county road, 0.6 mile north on a dirt road, about 700 feet west of the road; in Coffee County:

Al—0 to 8 inches; black (N 2/0) loam; weak and moderate fine granular structure; very friable; many fine and medium roots; high content of organic matter; very strongly acid; clear smooth boundary.

A2—8 to 14 inches; very dark gray (10YR 3/1) loam; weak medium granular structure; very friable; many fine and medium roots; high content of organic matter; very strongly acid; gradual smooth boundary.

Btg1—14 to 20 inches; dark gray (10YR 4/1) clay loam; weak fine subangular blocky structure; friable; common fine and medium roots; some organic matter in root channels; very strongly acid; gradual wavy boundary.

Btg2—20 to 38 inches; gray (10YR 5/1) clay; common medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; very firm, plastic and sticky; few roots; few faint clay films on vertical faces of peds; very strongly acid; gradual smooth boundary.

Btg3—38 to 50 inches; gray (10YR 5/1) clay; common medium distinct brownish yellow (10YR 6/6) mottles; weak fine and medium subangular blocky structure; very firm, plastic and sticky; few medium roots; few distinct clay films on vertical faces of peds; very strongly acid; gradual wavy boundary.

Btg4—50 to 70 inches; gray (10YR 6/1) clay; common medium distinct strong brown (7.5YR 5/8) and light gray (10YR 7/1) mottles; weak fine subangular blocky structure; very firm, plastic and sticky; very strongly acid.

Solum thickness is 60 to 80 inches. The soil is very strongly acid or strongly acid throughout.

The A horizon is 8 to 16 inches thick. It has hue of 10YR, value of 2 or 3, and chroma of 10; or value of 3, and chroma of 2; or it is neutral and has value of 2 or 3.

The BE horizon, if present, has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is clay loam, sandy clay loam, or loam. The Bt horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has grayish, yellowish, or brownish mottles. This horizon is sandy clay or clay.

Bibb Series

The Bibb series consists of poorly drained, moderately permeable soils that formed in loamy alluvial sediment. Bibb soils are on flood plains mainly along the Alapaha River, in the Atlantic Coast Flatwoods. The water table is at a depth of 0.5 foot to 1.5 feet from late in fall to early in spring. Slope is 0 to 2 percent.

Bibb soils are associated with Osier and Ousley soils. Osier and Ousley soils are mainly sandy throughout. Osier soils are moderately well drained.

Typical pedon of Bibb loam, from an area of Osier-Bibb association, frequently flooded; 5.2 miles south on Spring Head Church Road from the junction with Georgia Highway 135 near Willacoochee, 1.75 miles west of the road, 50 feet east of the Alapaha River; in Atkinson County:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many very fine and fine roots; few very fine and fine pores; strongly acid; abrupt wavy boundary.

Ag—8 to 16 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; very friable; few very fine and fine roots; strongly acid; clear wavy boundary.

Cgl—16 to 50 inches; light brownish gray (10YR 6/2) sandy loam; common medium distinct brownish yellow (10YR 6/6) mottles; massive; friable; few fine roots; few medium pores; strongly acid; clear wavy boundary.

Cg2—50 to 60 inches; light gray (10YR 7/2) sandy loam; massive; friable; common thin strata of sand and loamy sand; very strongly acid.

Thickness of the sediment is 60 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in limed areas.

The combined thickness of the Ap horizon and Ag horizon is 12 to 18 inches. The Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The Ag horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. Mottles, if present, have hue of 7.5YR, value of 5 to 8, and chroma of 4 or 6; or hue of 10YR, value of 5 to 8, and chroma of 3, 4, or 6. The Ag horizon is loamy sand, fine sandy loam, loam, or sandy loam.

The Cg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has few to many, fine or medium, brownish and yellowish mottles. The lower part of the Cg horizon in some pedons does not have a dominant gray color but is mottled brownish, yellowish, and gray. The Cg horizon is loamy fine sand, sandy loam, or loam.

Blanton Series

The Blanton series consists of moderately well drained, moderately permeable soils that formed in sandy and loamy marine sediment. Blanton soils are on uplands of the Southern Coastal Plain. Slope is 0 to 8 percent.

Blanton soils are associated with Albany, Cainhoy, Kershaw, and Sapelo soils. Albany soils are somewhat poorly drained. Excessively drained Kershaw soils and somewhat excessively drained Cainhoy soils are sandy throughout. Poorly drained Sapelo soils have a spodic horizon.

Typical pedon of Blanton sand, 0 to 8 percent slopes; 6.3 miles south on Spring Head Church Road from the junction with Georgia Highway 135 near Willacoochee, 0.3 mile west on a private road from Spring Head Church Road; in Atkinson County:

A—0 to 8 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common very fine and fine roots; very strongly acid; clear smooth boundary.

E1—8 to 36 inches; light yellowish brown (10YR 6/4) sand; weak fine granular structure; very friable; few very fine roots; pockets of uncoated sand grains; very strongly acid; gradual wavy boundary.

E2—36 to 44 inches; very pale brown (10YR 7/4) sand; single grained; loose; few very fine roots; many uncoated sand grains; very strongly acid; clear wavy boundary.

E3—44 to 65 inches; white (10YR 8/1) sand; few medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; most sand grains are uncoated; strongly acid; clear smooth boundary.

Bt1—65 to 77 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; very friable; strongly acid; clear wavy boundary.

Bt2—77 to 90 inches; very pale brown (10YR 7/3) sandy loam; common medium distinct brownish yellow (10YR 6/8) mottles, common medium prominent yellowish red (5YR 5/8) mottles, and few medium faint light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid.

Thickness of the solum is 90 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The sandy epipedon is 50 to 72 inches thick. The A horizon is 6 to 8 inches thick. It has hue of 10YR, value of 3, and chroma of 2; or value of 4 to 6, and chroma of 1 to 3. It is sand or fine gravelly sand. The E horizon is 46 to 64 inches thick. It has hue of 10YR, value of 5 to 8, and chroma of 1 to 4, or 6; or hue of 2.5Y, value of 5 to 8, and chroma of 2, 4, or 6. It is sand or fine gravelly sand.

The Bt1 horizon has hue of 10YR, value of 5 to 7, and chroma of 6 or 8. The Bt2 horizon has hue of 10YR, value of 6 or 7, and chroma of 2 to 4, or 6, and is mottled grayish, brownish, yellowish, and reddish.

Bonifay Series

The Bonifay series consists of well drained soils that formed in sandy and loamy marine sediment. These soils have rapid permeability in the surface and subsurface layers and moderately slow permeability in the subsoil. Bonifay soils are on uplands of the Southern Coastal Plain. Slope is 2 to 8 percent.

Bonifay soils are associated with Albany, Fuquay, and Troup soils. Albany soils are somewhat poorly drained. Albany and Troup soils do not have plinthite in the subsoil. Fuquay soils are arenic.

Typical pedon of Bonifay sand, 2 to 8 percent slopes; 2.8 miles west of Pridgen on a county road, 2,500 feet north on a dirt road, 10 feet west of the road; in Coffee County:

A—0 to 7 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; many fine roots; very few small pebbles of ironstone; strongly acid; gradual wavy boundary.

E1—7 to 17 inches; yellow (10YR 7/6) sand; single grained; loose; many fine roots; few small pebbles of ironstone; clean sand grains; strongly acid; gradual wavy boundary.

E2—17 to 35 inches; light yellowish brown (10YR 6/4) sand; common medium distinct brownish yellow (10YR 6/8) mottles; single grained; loose; many uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

E3—35 to 50 inches; brownish yellow (10YR 6/6) sand; single grained; very friable; many uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

Bt—50 to 56 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure;

friable; sand grains coated and bridged with clay; 2 percent brittle plinthite; strongly acid; gradual wavy boundary.

Btv1—56 to 80 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6), red (2.5YR 4/6), and light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable; few distinct clay films bridged around pebbles and on faces of peds; estimated 15 percent by volume firm brittle plinthite; strongly acid; gradual wavy boundary.

Btv2—80 to 108 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) and light gray (10YR 7/2) mottles and common medium prominent red (2.5YR 4/6) mottles; moderate fine subangular blocky structure; friable; few distinct clay films bridged around plinthite nodules and on faces of peds; estimated 5 percent by volume brittle plinthite; strongly acid.

Thickness of the solum is 81 inches or more. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Depth to horizon containing 5 percent or more plinthite is 52 to 60 inches.

The sandy epipedon is 40 to 55 inches thick. The A horizon or Ap horizon is 4 to 8 inches thick. It has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2. The E horizon is 36 to 50 inches thick. It has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 or 6.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 or 8. It has yellowish, brownish, or reddish mottles throughout and has grayish mottles in the middle and lower parts. Plinthite ranges from 5 to 15 percent by volume.

Cainhoy Series

The Cainhoy series consists of somewhat excessively drained, rapidly permeable soils that formed in sandy marine sediment. These soils are on the Brandywine Terrace of the Atlantic Coast Flatwoods. Slope is 0 to 5 percent.

Cainhoy soils are associated with Blanton, Sapelo, and Surrency soils. Moderately well drained Blanton soils have a Bt horizon within a depth of 50 to 72 inches. Poorly drained Sapelo soils have a Bh horizon within a depth of about 20 inches. Very poorly drained Surrency soils have an umbric epipedon and do not have a Bh horizon.

Typical pedon of Cainhoy sand, 0 to 5 percent slopes; 1.0 mile south on Georgia Highway 135 from the junction with U.S. Highway 82, 0.5 mile east on county-maintained road, 0.2 mile northeast on a private dirt road, 50 feet east of the road; in Atkinson County:

A—0 to 4 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; many fine and medium roots; very strongly acid; clear smooth boundary.

Bw1—4 to 18 inches; yellowish brown (10YR 5/4) sand; single grained; loose; many fine roots; strongly acid; gradual wavy boundary.

Bw2—18 to 58 inches; brownish yellow (10YR 6/6) sand; single grained; loose; common fine and medium roots; strongly acid; gradual wavy boundary.

Bw3—58 to 72 inches; pale yellow (2.5Y 7/4) sand; few fine distinct strong brown (7.5YR 5/6) mottles; single grained; loose; strongly acid; clear wavy boundary.

E1—72 to 78 inches; light gray (10YR 7/2) sand; few fine faint yellowish brown mottles; single grained; loose; strongly acid; gradual wavy boundary.

E2—78 to 88 inches; light gray (10YR 7/2) sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grained; loose; strongly acid; gradual wavy boundary.

E3—88 to 110 inches; light gray (2.5Y 7/2) sand; few fine faint pale yellow and pale brown mottles; single grained; loose; nonsticky; strongly acid; clear smooth boundary.

Bh—110 to 120 inches; dark brown (7.5YR 3/2) sand; common fine faint grayish brown mottles; single grained; weakly cemented; very strongly acid.

Thickness of the sand to the Bh horizon is 80 inches or more. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon is 3 to 9 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The Bw horizon is 16 to 80 inches thick. It has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 or 6. If present, few or common, fine or medium, brownish and yellowish mottles are in the lower part of the Bw horizon.

The E horizon is 28 to 66 inches thick. It has hue of 10YR or 2.5Y, value of 6 to 8, and chroma of 2. Some pedons have few or common medium yellowish or brownish mottles throughout this horizon.

The Bh horizon has hue of 5YR or 10YR, value of 2 or 3, and chroma of 1 or 2; or hue of 7.5YR, value of 3, and chroma of 2. Some pedons have common mottles that are fine faint grayish brown or medium distinct brown.

Carnegie Series

The Carnegie series consists of well drained soils that have moderate permeability in the upper part of the subsoil and moderately slow permeability in the lower part. These soils formed in loamy and clayey marine sediment on uplands of the Southern Coastal Plain. Slope is 3 to 8 percent.

Carnegie soils are associated with Cowarts, Sunsweet, and Tifton soils. Cowarts soils have a thinner solum, are in a fine-loamy family, and are less than 5 percent plinthite. Sunsweet soils have plinthite above a depth of 15 inches. Tifton soils are in a fine-loamy family and have 5 percent or more plinthite below a depth of 30 to 50 inches.

Typical pedon of Carnegie sandy loam, 3 to 5 percent slopes, eroded; 2.4 miles south on U.S. Highway 441 from the junction of Georgia Highway 158 in Douglas, 1.3 miles east on a dirt road from Franklin Church, 0.3 mile south on a dirt road, 1700 feet west of the road; in Coffee County:

Apc—0 to 7 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine roots; about 10 percent nodules of ironstone 0.12 to 0.50 inch in diameter; strongly acid; abrupt wavy boundary.

Btc—7 to 19 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots in upper part; few distinct clay films on faces of peds; few small nodules of ironstone; very strongly acid; gradual wavy boundary.

Btv1—19 to 35 inches; yellowish brown (10YR 5/6) sandy clay; common medium distinct yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay film on faces of peds; few small nodules of ironstone; about 8 percent nodular plinthite; very strongly acid; gradual wavy boundary.

Btv2—35 to 46 inches; mottled yellowish brown (10YR 5/6), dark red (2.5YR 3/6), and pale brown (10YR 6/3) clay; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; about 10 percent nodular plinthite; very strongly acid; gradual wavy boundary.

Bt—46 to 70 inches; coarsely mottled, yellowish brown (10YR 5/8), dark red (2.5YR 3/6), light brownish gray (10YR 6/2), and yellow (10YR 7/8) clay; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; very strongly acid.

Thickness of the solum is 61 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Depth to the horizon containing 5 percent or more plinthite is 18 to 22 inches.

The Ac horizon or Apc horizon is 4 to 8 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Nodules of ironstone range from 5 to 15 percent by volume.

The Btc horizon has hue of 10YR, value of 5, and chroma of 6 or 8; hue of 7.5YR, value of 5, and chroma of 8; or hue of 5YR, value of 4, and chroma of 8. The Btv horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. Mottles are brownish, reddish, yellowish, or white. This horizon is sandy clay or clay. The Bt horizon is reticulately mottled brownish, reddish, yellowish, and white. The low chroma mottles are lithochromic and do not represent wetness. This horizon is sandy clay or clay. Nodules of ironstone range from 5 to 10 percent in the upper part of the Btc horizon. Plinthite ranges from 5 to 12 percent in the Btv1 and Btv2 horizons.

Chastain Series

The Chastain series consists of poorly drained, slowly permeable soils that formed in clayey alluvial sediment. Chastain soils are on flood plains of the Ocmulgee River. The water table is within a depth of 1 foot from late in fall to late in spring. Slope is 0 to 2 percent.

Chastain soils are associated with Tawcaw soils. Tawcaw soils are somewhat poorly drained.

Typical pedon of Chastain silty clay in an area of Chastain-Tawcaw complex, frequently flooded; 0.50 mile southeast on U.S. Highway 441 from the Ocmulgee River to a private north-south road that joins U.S. Highway 441 from the south, 0.62 mile south on the private road, 250 feet east in a swale; in Coffee County:

A—0 to 5 inches; dark brown (7.5YR 4/2) silty clay; weak fine subangular blocky structure; friable; many fine roots; very strongly acid; clear smooth boundary.

Bg1—5 to 12 inches; light brownish gray (10YR 6/2) clay; many fine distinct brown (10YR 5/3) mottles; weak fine subangular blocky structure; firm; common fine roots; few small black stained specks of iron and manganese; very strongly acid; gradual wavy boundary.

Bg2—12 to 46 inches; light gray (10YR 7/1) clay; many fine distinct brown (10YR 5/3) mottles, and few medium prominent strong brown (7.5YR 5/8) mottles; strong fine subangular blocky structure; firm; few small black stained specks of iron and manganese; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bg3—46 to 55 inches; gray (5Y 6/1) clay; many coarse prominent yellowish brown (10YR 5/8) mottles; moderate fine subangular blocky structure, firm; many small black manganese concretions; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bg4—55 to 64 inches; gray (5Y 6/1) sandy clay; many coarse prominent yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; firm; common medium black manganese concretions; strongly acid.

Thickness of the solum is 40 to 72 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon is 4 to 6 inches thick. It has hue of 10YR, value of 4 to 6, and chroma of 1 to 4; or hue of 2.5Y or 7.5YR, value of 4 to 6, and chroma of 2 or 4.

The Bg horizon has hue of 5Y or 10YR, value of 5 to 7, and chroma of 1 or 2; hue of 2.5Y, value of 5 to 7, and chroma of 2; or it is neutral and has value of 5 or 6. Mottles range from few to many and are brownish or reddish. The Bg horizon is clay loam, silty clay, or clay.

Clarendon Series

The Clarendon series consists of moderately well drained soils. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. These soils formed mainly in loamy marine sediment on uplands of the Southern Coastal Plain. The water table is at a depth of 1.5 to 2.5 feet in winter and early in spring. Slope is 0 to 5 percent.

Clarendon soils are associated with Leefield, Stilson, and Tifton soils. Leefield and Stilson soils are arenic; also, Leefield soils are somewhat poorly drained. Tifton soils are well drained and have more nodules of ironstone throughout.

Typical pedon of Clarendon loamy sand, 0 to 2 percent slopes; about 5.5 miles north on U.S. Highway 1 from the junction with Georgia Highway 32 in Alma, 3.25 miles west on a paved road, 2.0 miles north on a paved road, 250 feet east of the road; in Bacon County:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; few small nodules of ironstone; strongly acid; clear smooth boundary.

Bt1—9 to 12 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine subangular blocky structure; friable; many fine roots; few small nodules of ironstone; strongly acid; clear smooth boundary.

Bt2—12 to 26 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct reddish yellow (7.5YR 6/6) mottles; weak fine subangular blocky structure; friable; few fine roots; common small nodules of ironstone; few faint clay films on faces of peds and in pores; strongly acid; gradual smooth boundary.

Btv1—26 to 40 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and light gray (10YR 7/2) mottles; weak fine subangular blocky structure; friable; few distinct patchy clay films on faces of peds and in pores; about 10 percent plinthite; very strongly acid; gradual wavy boundary.

Btv2—40 to 60 inches; mottled strong brown (7.5YR 5/6), light gray (10YR 7/2), and yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; firm; few faint clay films on faces of peds and in pores; about 20 percent plinthite; very strongly acid.

Thickness of the solum is 60 inches or more. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Depth to the horizon containing 5 percent or more plinthite is 22 to 36 inches.

The A horizon or Ap horizon is 7 to 9 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The E horizon, if present, is 1 to 8 inches thick. It has hue of 10YR, value of 5 or 6, and chroma of 3 or 4; or hue of 2.5Y, value of 5 or 6, and chroma of 4. Few or common nodules of ironstone are in the A and E horizons.

The BE horizon, if present, has hue of 10YR, value of 5 to 7, and chroma of 6 or 8; hue of 2.5Y, value of 6 or 7, and chroma of 6 or 8; or hue of 2.5Y, value of 5, and chroma of 6. It is loamy sand or sandy loam.

The Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 4, 6, or 8. If present, mottles are many, medium and coarse, reddish, brownish, and yellowish. Few or common gray mottles are at a depth of 20 to 30 inches. Plinthite content ranges from 5 to 20 percent, but the plinthite is mostly in the lower part of the Bt horizon. The upper part of the Bt horizon is sandy loam or sandy clay loam, the middle part is mainly sandy clay loam, and the lower part is sandy clay loam or sandy clay.

Cowarts Series

The Cowarts series consists of well drained soils that have moderate permeability in the subsoil and moderately slow or slow permeability in the underlying material. These soils formed in loamy marine sediment on uplands of the Southern Coastal Plain. Slope is 5 to 17 percent.

Cowarts soils are associated with Carnegie, Esto, and Sunsweet soils. The associated soils are in a clayey family and have a thicker solum. Also, most of the subsoil in Carnegie and Sunsweet soils is made up of 5 percent or more plinthite.

Typical pedon of Cowarts loamy sand from an area of Carnegie-Cowarts complex, 5 to 8 percent slopes, eroded; 4.8 miles west of Broxton on Georgia Highway 206 from the junction with U.S. Highway 441, 0.75 mile south on a county road, 750 feet east of the county road; in Coffee County:

Apc—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; common nodules of ironstone; strongly acid; abrupt smooth boundary.

Bt1—7 to 14 inches; strong brown (7.5YR 5/8) sandy clay loam; weak fine subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; few small nodules of ironstone; very strongly acid; gradual wavy boundary.

Bt2—14 to 33 inches; strong brown (7.5YR 5/8) sandy clay loam; common medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few distinct clay films on faces of peds; few small nodules of ironstone; very strongly acid; gradual wavy boundary.

C—33 to 65 inches; mottled light yellowish brown (10YR 6/4), light gray (10YR 7/2), and red (10R 4/8) sandy loam; massive; firm; very strongly acid.

Thickness of the solum is 30 to 40 inches. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The Ac horizon or the Apc horizon is 5 to 10 inches thick and has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The E horizon, if present, has hue of 10YR or 2.5Y, value of 6, and chroma of 4 or 6. Nodules of ironstone range from 2 to 10 percent.

The sandy loam BE horizon, if present, has hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8.

The Bt horizon has hue of 10YR to 5YR, value of 5, and chroma of 6 or 8. The lower part of the Bt horizon has many medium or coarse, reddish, grayish, yellowish, or brownish mottles. The gray mottles do not represent wetness. Nodules of ironstone, if present, range from 1 to 3 percent in the upper part of the Bt horizon.

The C horizon is mottled in hue of 10YR or 5YR, value of 4 to 8, and chroma of 1 to 4, 6, or 8; hue of 10R, value of 4 to 6, and chroma of 1 to 4, 6, or 8; hue of 7.5YR, value of 4 to 8, and chroma of 2, 4, 6, or 8; or hue of 2.5YR, value of 4 to 6, and chroma of 2, 4, 6, or 8. This horizon is sandy clay loam or sandy loam and is dense. Commonly, there are pockets and layers of sandier or finer materials in the C horizon.

Dasher Series

The Dasher series consists of very poorly drained soils that have moderately rapid permeability. These soils formed in beds of hydrophytic plant remains in the Atlantic Coast Flatwoods. The soil generally is ponded or the water table is at a depth of less than 0.5 foot most of the year. Slope is less than 1 percent.

Dasher soils are associated with Albany, Bayboro, Blanton, Pelham, and Sapelo soils. The associated soils formed in mineral sediment, and most are better drained than the Dasher soils.

Typical pedon of Dasher muck, ponded; about 6 miles south on Spring Hill Church Road from the junction with U.S. Highway 82 in Willacoochee, 600 feet west of the road; in Atkinson County:

Op—0 to 8 inches; black (5YR 2/1) unrubbed and rubbed, partially decomposed organic material; about 40 percent fiber, 20 percent rubbed; weak medium granular structure; slightly sticky; estimated 2 percent mineral material; sodium pyrophosphate extract color is light yellowish brown (10YR 6/4); extremely acid; abrupt wavy boundary.

Oe1—8 to 20 inches; dark reddish brown (5YR 2/2) rubbed and unrubbed, partially decomposed organic material; about 36 percent fiber, 20 percent rubbed; massive; very friable; estimated 2 to 5 percent mineral matter; sodium pyrophosphate extract color is very pale brown (10YR 7/4); extremely acid; clear wavy boundary.

Oe2—20 to 40 inches; dark reddish brown (5YR 2/2) rubbed and unrubbed, partially decomposed organic material; about 40 percent fiber, 25 percent rubbed; massive, very friable; estimated 2 to 5 percent mineral material; sodium pyrophosphate extract color is very pale brown (10YR 7/3); extremely acid; clear wavy boundary.

Oe3—40 to 70 inches; black (10YR 2/1) rubbed and unrubbed, partially decomposed organic material; about 50 percent fiber, 30 percent rubbed; massive; very friable; sodium pyrophosphate extract color is white (10YR 8/1); estimated 2 to 5 percent mineral matter; extremely acid.

Thickness of the organic material is dominantly 55 to 75 inches but ranges to 180 inches.

The organic material throughout has hue of 5YR or 10YR, value of 2 or 3, and chroma of 1 or 2; or hue of 5YR or 10YR, value of 3, and chroma of 3. The fiber content of the Op, Oe1, and Oe2 horizons averages about 35 to 45 percent and 18 to 25 percent rubbed. The fiber content of the Oe3 horizon averages about 50 to 60 percent and about 25 to 35 percent rubbed.

Dothan Series

The Dothan series consists of well drained soils that formed mainly in loamy marine sediment on uplands of the Southern Coastal Plain. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Slope is 0 to 5 percent.

Dothan soils are associated with Carnegie, Clarendon, Fuquay, and Tifton soils. Carnegie soils are in a clayey family. Clarendon soils are moderately well drained. Fuquay soils are arenic. Tifton soils have more nodules of ironstone throughout.

Typical pedon of Dothan loamy sand, 0 to 2 percent slopes; 2.5 miles north on U.S. Highway 23 from the junction with U.S. Highway 1, 0.75 mile east of U.S. Highway 23, 0.3 mile north of Unity Baptist Church; in Bacon County:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; few small nodules of ironstone; strongly acid; gradual smooth boundary.

Bt1—8 to 16 inches; brownish yellow (10YR 6/6) sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

Bt2—16 to 28 inches; brownish yellow (10YR 6/8) sandy clay loam; weak fine subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

Bt3—28 to 38 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; few fine roots; few distinct clay films on faces of peds; 3 percent plinthite; few small nodules of ironstone; strongly acid; gradual wavy boundary.

Btv1—38 to 48 inches; brownish yellow (10YR 6/8) sandy clay loam; few medium distinct strong brown (7.5YR 5/8) and yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; firm; 15 percent plinthite; few small nodules of ironstone; strongly acid; gradual wavy boundary.

Btv2—48 to 60 inches; brownish yellow (10YR 6/8) sandy clay loam; common fine distinct strong brown (7.5YR 5/8), yellowish red (5YR 4/6), and white (10YR 8/2) mottles; weak medium subangular blocky structure; firm; 6 percent plinthite; strongly acid.

Thickness of the solum is 60 to 80 inches. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. If present, nodules of ironstone range from 1 to 5 percent by volume in the A horizon and B horizon. Depth to the horizon that contains 5 percent or more plinthite is 24 to 38 inches.

The A horizon or Ap horizon is 6 to 10 inches thick. It has hue of 10YR, value of 4 to 6, and chroma of 2 to 4; or hue of 2.5Y, value of 4 or 6, and chroma of 2 or 4.

The loamy sand E horizon, if present, has hue of 10YR, value of 5 or 6, and chroma of 4.

The BE horizon has hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8; or hue of 2.5Y, value of 5 or 6, and chroma of 4 or 6.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8; or hue of 2.5Y, value of 5 or 6, and chroma of 6. In most pedons, the lower part of the Bt horizon has red, strong brown, light gray, and pale brown mottles. Plinthite ranges from 5 to 20 percent. The upper part of the Bt horizon is sandy loam or sandy clay loam, the middle part is sandy clay loam, and the lower part is sandy clay loam or sandy clay.

Esto Series

The Esto series consists of well drained, slowly permeable soils that formed mainly in clayey marine sediment on uplands of the Southern Coastal Plain. Slope is 2 to 12 percent.

Esto soils are associated with Ailey, Carnegie, Cowarts, Sunsweet, and Troup soils. Ailey soils are arenic and have dense properties in the subsoil. Cowarts soils have a thinner solum and are in a fine loamy family. Carnegie and Sunsweet soils contain 5 percent or more plinthite. Troup soils are grossarenic.

Typical pedon of Esto loamy sand, 2 to 5 percent slopes; 2.9 miles west on a county road from Pridgen, 1.2 miles north on a dirt road, 1.2 miles west on a private road, 100 feet north of the road; in Coffee County:

A—0 to 5 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

E—5 to 8 inches; light yellowish brown (10YR 6/4) loamy sand; weak medium granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

BE—8 to 11 inches; yellowish brown (10YR 5/4) sandy clay loam; weak fine blocky structure; friable, plastic; few fine roots; strongly acid; clear wavy boundary.

Bt1—11 to 24 inches; strong brown (7.5YR 5/6) sandy clay; weak medium subangular blocky structure; firm, plastic; common fine roots; few distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—24 to 35 inches; yellowish brown (10YR 5/6) clay; many medium prominent red (2.5YR 4/6) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; very firm, very plastic; common prominent clay films on faces of peds; few fine roots; strongly acid; gradual wavy boundary.

Bt3—35 to 70 inches; light brownish gray (10YR 6/2) clay; many medium prominent red (2.5YR 4/6) mottles, and many medium distinct strong brown (7.5YR 5/8) mottles; firm; moderate medium subangular blocky structure; few distinct clay films on ped faces; strongly acid.

Thickness of the solum is 70 inches or more. The soil is very strongly acid or strongly acid, except for the surface layer in areas that have been limed.

The A horizon is 3 to 5 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. If present, nodules of ironstone and quartz pebbles are few.

The loamy sand E horizon, if present, has hue of 10YR, value of 6, and chroma of 4.

The BE horizon, if present, has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8. It is sandy loam or sandy clay loam.

The upper part of the Bt horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6; or hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6. Some pedons have few or common, reddish, grayish, and brownish mottles. The rest of the Bt horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2; hue of 2.5Y, value of 4 to 6, and chroma of 2; or it is neutral and has value of 4 to 6. It also has few to many, red and brown mottles. Some pedons have no dominant matrix color but are mottled reddish, brownish, and grayish. The Bt horizon is sandy clay or clay.

Fuquay Series

The Fuquay series consists of well drained soils that have moderate permeability in the upper part of the subsoil and slow permeability in the lower part. These soils formed in sandy and loamy marine sediment on uplands of the Southern Coastal Plain. Slope is 1 to 5 percent.

Fuquay soils are associated with Bonifay, Dothan, Leefield, Stilson, and Tifton soils. Bonifay soils are grossarenic. Dothan and Tifton soils have an A horizon less than 20 inches thick. Also, Tifton soils have 5 percent or more nodules of ironstone in the surface layer. Leefield soils are somewhat poorly drained, and Stilson soils are moderately well drained.

Typical pedon of Fuquay loamy sand, 1 to 5 percent slopes; 0.4 mile east on Georgia Highway 268 from Seventeen Mile Creek, 1.1 mile north on a dirt road, 0.2 mile west on a dirt road, 75 feet north of the road; in Coffee County:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; few small and medium nodules of ironstone; strongly acid; abrupt smooth boundary.

E—10 to 32 inches; brownish yellow (10YR 6/6) loamy sand; weak fine granular structure; very friable; common medium roots; very strongly acid; clear wavy boundary.

Bt—32 to 38 inches; yellowish brown (10YR 5/8) sandy loam; few fine faint strong brown mottles; weak fine subangular blocky structure; friable; few medium roots; very strongly acid; clear wavy boundary.

Btv1—38 to 45 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few medium roots; few faint clay films on faces of peds; few small nodules of ironstone; 5 percent plinthite; very strongly acid; clear smooth boundary.

Btv2—45 to 52 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few medium roots; few distinct clay films on faces of peds; few small nodules of ironstone; 10 percent nodular plinthite; very strongly acid; gradual smooth boundary.

Btv3—52 to 80 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) and red (2.5YR 4/6) mottles and common fine faint light gray mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; few small nodules of ironstone; 10 percent nodular plinthite; very strongly acid.

Thickness of the solum is 80 to 90 inches. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Depth to the horizon containing 5 percent or more plinthite is 38 to 60 inches.

The sandy epipedon is 20 to 40 inches thick. The Ap horizon or A horizon is 4 to 10 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 1 or 2; or hue of 2.5Y, value of 4 or 5, and chroma of 2. The E horizon is 16 to 30 inches thick. It has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 or 6. If present, nodules of ironstone are few. Some pedons have light gray bodies of clean sand grains.

The sandy loam BE horizon, if present, has hue of 10YR, value of 5, and chroma of 4, 6, or 8; or hue of 10YR, value of 6, and chroma of 6.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 4, 6, or 8. If present, mottles in the lower part of the Bt horizon are few or common, fine to coarse, and brownish, reddish, and grayish. In some pedons, the lower part of the Bt horizon is reticulately mottled Plinthite ranges from 5 to 12 percent in the lower part of the Bt horizon. Nodules of ironstone are few or common throughout the Bt horizon.

Johnston Series

The Johnston series consists of very poorly drained soils that formed in loamy and sandy alluvial sediment. These soils have moderately rapid permeability in the thick surface layer and rapid permeability in the underlying layers. These soils are on flood plains of the larger streams of the Southern Coastal Plain. The water table is within a depth of 1.5 feet from midfall to late in spring. Slope is 0 to 2 percent.

Johnston soils are associated with Kinston and Pelham soils. The associated soils do not have an umbric epipedon and are poorly drained. Also, Kinston soils are in a fine-loamy family, and Pelham soils are arenic.

Typical pedon of Johnston mucky loam from an area of Kinston and Johnston soils, frequently flooded; 2.5 miles north on U.S. Highway 1 from the courthouse in Alma, 150 feet west of U.S. Highway 1; in Bacon County:

A—0 to 36 inches; black (10YR 2/1) mucky loam; massive; friable; many fine and medium roots; high in organic matter; strongly acid; abrupt smooth boundary.

Cg1—36 to 50 inches; dark grayish brown (10YR 4/2) loamy sand; massive; loose; strongly acid; abrupt smooth boundary.

Cg2—50 to 65 inches; dark gray (10YR 4/1) loamy sand; massive; loose; medium sand grains; few pockets of sandy loam; strongly acid.

Thickness of the sediment is 60 inches or more. The soil is strongly acid or very strongly acid throughout.

The A horizon is 25 to 40 inches thick. It has hue of 10YR, value of 2 or 3, and chroma of 1; or it is neutral and has value of 2 or 3.

The Clg horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The Cg2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. The Cg horizon generally is loamy sand or sandy loam. In some pedons, individual strata are sandy clay loam, sandy loam, loamy sand, or sand.

Kershaw Series

The Kershaw series consists of excessively drained, very rapidly permeable soils that formed in sandy marine sediment mostly on uplands along the eastern side of streams of the Southern Coastal Plain. Slope is 2 to 8 percent.

Kershaw soils are associated with Blanton, Sapelo, and Surrency soils. Moderately well drained Blanton soils are grossarenic. Poorly drained Sapelo soils have a spodic horizon. Very poorly drained Surrency soils are arenic and have an umbric epipedon.

Typical pedon of Kershaw coarse sand, 2 to 8 percent slopes; 1 mile east of Coffee State Park, 100 feet south of Georgia Highway 32; in Coffee County:

A—0 to 3 inches; dark grayish brown (10YR 4/2) coarse sand; single grained; loose; many fine roots; strongly acid; clear wavy boundary.

C1—3 to 10 inches; light yellowish brown (10YR 6/4) coarse sand; common medium faint brown (10YR 5/3) mottles; single grained; loose; common medium roots; some sand grains stained; very strongly acid; gradual wavy boundary.

C2—10 to 65 inches; brownish yellow (10YR 6/6) coarse sand; single grained; loose; common medium roots; most sand grains clean; very strongly acid; gradual wavy boundary.

C3—65 to 90 inches; very pale brown (10YR 7/4) coarse sand; common medium faint brownish yellow (10YR 6/6) mottles; single grained; loose; most sand grains clean; very strongly acid; gradual wavy boundary.

Thickness of the sand or coarse sand is 80 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon is 2 to 5 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

The C horizon has hue of 10YR, value of 5 to 8, and chroma of 3, 4, or 6.

Kinston Series

The Kinston series consists of poorly drained, moderately permeable soils that formed in loamy alluvial sediment. These soils are on flood plains of the larger streams of the Southern Coastal Plain. The water table is within 1 foot of the surface from midfall to late in spring. Slope is 0 to 2 percent.

Kinston soils are associated with Bibb, Johnston, Pelham, and Osier soils. Bibb and Johnston soils are in a coarse-loamy family. Pelham soils are arenic. Osier soils are sandy throughout.

Typical pedon of Kinston sandy loam from an area of Kinston and Johnston soils, frequently flooded; 2 miles north on U.S. Highway 1 from the courthouse in Alma, 200 feet west of U.S. Highway 1; in Bacon County:

A—0 to 6 inches; dark grayish brown (10YR 4/2) sandy loam: weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

Cg1—6 to 13 inches; light brownish gray (10YR 6/2) sandy loam; weak fine granular structure; friable; common fine roots; very strongly acid; gradual wavy boundary.

Cg2—13 to 29 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; massive; friable; many fine pores; very strongly acid; gradual wavy boundary.

Cg3—29 to 52 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) mottles; massive; friable; many fine pores; pockets of sandy loam; very strongly acid; gradual wavy boundary.

Cg4—52 to 65 inches; light gray (10YR 7/1) sandy loam; few medium faint light brownish gray (10YR 6/2) mottles; massive; friable; few thin strata of sand; very strongly acid.

Thickness of the sediment is 60 inches or more. The soil is strongly acid or very strongly acid throughout.

The A horizon or Ap horizon is 4 to 10 inches thick. It has hue of 10YR, value of 3 or 6, and chroma of 1 or 2.

The Cg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2, or it is neutral and has value of 6 or 7. Most pedons have few to many yellowish, brownish, and reddish mottles. The Cg horizon is sandy loam or sandy clay loam, but some pedons are sandy clay below a depth of 40 inches. Some pedons have thin strata of sandy material.

Leefield Series

The Leefield series consists of somewhat poorly drained soils that have moderate permeability in the upper part of the subsoil, and moderately slow permeability in the lower part. These soils formed in loamy and sandy marine sediment on uplands mainly in the Atlantic Coast Flatwoods. The water table is at a depth of about 1.5 to 2.5 feet from late in fall to early in spring. Slope is 0 to 2 percent.

Leefield soils are associated with Fuquay, Pelham, and Stilson soils. Fuquay soils are well drained. Stilson soils are moderately well drained. Pelham soils are poorly drained and do not contain plinthite.

Typical pedon of Leefield loamy sand; 2 miles west on Georgia Highway 32 from the courthouse in Alma, 1 mile northwest on a dirt road, 0.25 mile east on a dirt road, 100 feet south of the road; in Bacon County:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

E—10 to 26 inches; pale yellow (2.5Y 7/4) sand; few fine faint brownish yellow mottles and common medium distinct light gray (10YR 7/2) uncoated sand grains; single grained; very friable; common roots; very strongly acid; gradual wavy boundary.

Bt—26 to 32 inches; yellow (10YR 7/6) sandy loam; common medium distinct yellowish brown (10YR 5/8) and light gray (10YR 7/2) mottles; weak fine subangular blocky structure; very friable; few fine roots; very strongly acid; gradual wavy boundary.

Btv1—32 to 38 inches; pale yellow (2.5Y 7/4) sandy clay loam; common medium distinct light gray (10YR 7/2) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; sand grains coated and bridged with clay; few small nodules of ironstone; 5 percent nodular plinthite; very strongly acid; clear smooth boundary.

Btv2—38 to 62 inches; reticulately mottled light gray (10YR 7/2), yellowish brown (10YR 5/8), and yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few roots; sand grains coated and bridged with clay; few small nodules of ironstone; 10 percent plinthite; very strongly acid.

Thickness of the solum is 60 to 90 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Depth to the horizon containing 5 percent or more plinthite is 30 to 48 inches.

The sandy epipedon is 20 to 40 inches thick. The Ap horizon or A horizon is 6 to 12 inches thick. This horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The E horizon is 14 to 28 inches thick. It has hue of 10YR, value of 5 to 8, and chroma of 2 to 4 or 6; or hue of 2.5Y, value of 5 to 7, and chroma of 2 or 4. It has few or common gray or yellow mottles.

The BE horizon, if present, has hue of 10YR or 2.5Y, value of 6, and chroma of 4, 6, or 8. It has few or common light gray or yellowish brown mottles.

The Bt horizon has hue of 10YR, value of 6 or 7, and chroma of 4 or 6. Mottles are grayish and brownish.

The Btv horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 4, 6, or 8; or hue of 2.5Y, value of 8, chroma of 4. Mottles are reddish, brownish, yellowish, or grayish. The Btv horizon is sandy loam or sandy clay loam.

Plinthite ranges from 5 to 15 percent. Some pedons have a few nodules of ironstone.

Osier Series

The Osier series consists of poorly drained, rapidly permeable soils that formed in sandy alluvial sediment. Osier soils are on flood plains mainly along the Alapaha River in the Atlantic Coast Flatwoods. The water table is at the surface or within a depth of 1 foot from late in fall to early in spring. Slope is 0 to 2 percent.

Osier soils are associated with Bibb and Ousley soils. Bibb soils are in a coarse loamy family. Ousley soils are moderately well drained.

Typical pedon of Osier loamy fine sand, in an area of Osier-Bibb association, frequently flooded; 4.2 miles south on Spring Head Church Road from the junction with Georgia Highway 135 near Willacoochee, 1.5 miles west of the road, 20 feet east of the Alapaha River; in Atkinson County:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; abrupt wavy boundary.

A/C—6 to 10 inches; dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) loamy fine sand that is mixed; weak fine granular structure; very friable; common fine and very fine roots; strongly acid; clear smooth boundary.

Cg1—10 to 35 inches; grayish brown (10YR 5/2) loamy fine sand; weak fine granular structure; very friable; few fine and very fine roots; strongly acid; clear wavy boundary.

Cg2—35 to 80 inches; light gray (10YR 7/1) sand; common medium distinct yellow (10YR 7/6) mottles; single grained; loose; strongly acid.

Thickness of the sandy sediment is 80 inches or more. The soil is very strongly acid or strongly acid throughout. Most pedons have thin strata as fine as fine sandy loam.

The A horizon or Ap horizon is 4 to 12 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

The Cg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has few or common grayish, yellowish, brownish, or reddish mottles. The Cg horizon is coarse sand, sand, loamy sand, or loamy fine sand.

Ousley Series

The Ousley series consists of moderately well drained, rapidly permeable soils that formed in sandy sediment. Ousley soils are on flood plains of the larger streams in the Atlantic Coast Flatwoods. The water table is at a depth of 1.5 to 3 feet from late in fall to midspring. Slope is 0 to 2 percent.

Ousley soils are associated with Albany, Bibb, Kershaw, and Osier soils. Somewhat poorly drained Albany soils are grossarenic and are on smooth uplands. Bibb and Osier soils are poorly drained. Kershaw soils are excessively drained and are on dunelike ridges on uplands.

Typical pedon of Ousley loamy fine sand, occasionally flooded; 4.2 miles south on Spring Head Church Road from the junction of Georgia Highway 135 near Willacoochee, 1.5 miles west of the road, 600 feet east of the Alapaha River; in Atkinson County:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) loamy fine sand; single grained; loose; many fine roots; strongly acid; abrupt wavy boundary.
E—8 to 16 inches; light gray (2.5Y 7/2) fine sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.
C1—16 to 30 inches; pale yellow (2.5Y 7/4) loamy fine sand; common medium distinct light gray (10YR 7/2) mottles, and common fine faint yellow mottles; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.
C2—30 to 45 inches; pale yellow (2.5Y 7/4) coarse sand; common medium distinct light gray (10YR 7/2) mottles; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.
C3—45 to 80 inches; light gray (10YR 7/2) coarse sand; common fine distinct pale yellow (2.5Y 7/4) mottles; single grained; loose; few fine roots; strongly acid.

Thickness of the sand is 80 inches or more. The soil is strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon or Ap horizon is 5 to 8 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 1 or 2.

The E horizon has hue of 2.5Y, value of 5 to 7, and chroma of 2. The C horizon has hue of 10YR, value of 7, and chroma of 1 to 4 or 6; or value of 5 or 6, and chroma of 2 to 4 or 6, or hue of 2.5Y, value of 6 or 7, and chroma of 4. It has common or many grayish, brownish, and yellowish mottles. Some pedons have pockets of clean white sand in the C1 and C2 horizons.

The Ousley soils in this survey area are considered a taxadjunct to the series because they have an albic horizon. There is no significant difference in use, management, or behavior.

Pelham Series

The Pelham series consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediment. These soils are on uplands near drainageways mainly in the Atlantic Coast Flatwood. The soil generally is ponded or the water table is at a depth of 0.5 foot to 1.5 feet from winter to midspring. Slope is 0 to 2 percent.

Pelham soils are associated with Albany, Leefield, Rigdon, and Surrency soils. Albany, Leefield, and Rigdon soils are somewhat poorly drained. Also, Albany soils are grossarenic, Leefield soils have 5 percent or more plinthite above a depth of 60 inches, and Rigdon soils have a spodic horizon. Surrency soils are very poorly drained and have an umbric epipedon.

Typical pedon of Pelham loamy sand, occasionally flooded; 1 mile southwest of Seaboard Railroad crossing on Georgia Highway 64, 0.7 mile south on a dirt road, 50 feet west of the road; in Bacon County:

A—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.
E1—6 to 22 inches; grayish brown (10YR 5/2) sand; single grained; loose; common medium roots; strongly acid; gradual smooth boundary.
E2—22 to 33 inches; light brownish gray (10YR 6/2) sand; common fine distinct yellowish brown (10YR 5/6) mottles; single grained; loose; few fine and medium roots; very strongly acid; gradual smooth boundary.
Btg1—33 to 42 inches; light brownish gray (10YR 6/2) sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; very strongly acid; gradual smooth boundary.
Btg2—42 to 50 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; very strongly acid; gradual smooth boundary.
Btg3—50 to 60 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few small pockets of sandy loam; very strongly acid.

Thickness of the solum is 60 inches or more. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed.

The sandy epipedon is 20 to 40 inches thick. The A horizon is 5 to 8 inches thick. It has hue of 10YR, value of 2 to 4, and chroma of 1. The E horizon is 18 to 28 inches thick. It has hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. Some pedons have few or common, brownish yellow, yellowish brown, and strong brown mottles.

The sandy loam BE horizon, if present, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Some pedons have few or common, brownish yellow and yellowish brown mottles.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 5 to 7, and chroma of 2. Fine to coarse, yellowish, brownish, and reddish mottles are few to many throughout this horizon. The Btg horizon is mainly sandy loam and sandy clay loam but ranges to sandy clay.

Rigdon Series

The Rigdon series consists of somewhat poorly drained soils that formed in sandy and loamy marine sediment. These soils have rapid permeability in the surface and subsurface layers and moderate permeability in the spodic and subsoil horizons. Rigdon soils are on uplands mainly in the Atlantic Coast Flatwoods. The water table is at a depth of 1.5 to 2.5 feet from midwinter to midsummer. Slope is 0 to 2 percent.

Rigdon soils are associated with Albany, Leefield, Pelham, and Sapelo soils. Albany and Leefield soils and poorly drained Pelham soils do not have a Bh horizon. Poorly drained Sapelo soils have an E horizon more than 2 inches thick above the Bh horizon.

Typical pedon of Rigdon sand; about 0.75 mile south of junction of U.S. Highway 1 and U.S. Highway 23, 2.5 miles east on a graded road, 50 feet south of the road; in Bacon County:

A—0 to 7 inches; very dark gray (10YR 3/1) rubbed sand; weak fine granular structure; very friable; many fine and medium roots; light gray (10YR 6/1) uncoated sand grains mixed with coated sand gives salt-and-pepper appearance; very strongly acid; clear wavy boundary.

Bh—7 to 11 inches; mottled dark brown (7.5YR 3/2) and dark reddish brown (5YR 3/3) sand; massive in place, crushes to weak fine granular structure; firm; common medium and fine roots; most sand grains coated with organic matter; very strongly acid; gradual wavy boundary.

B/E—11 to 15 inches; mottled brown (7.5YR 4/2) and pale brown (10YR 6/3) sand; massive in place, crushes to weak fine granular structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

E1—15 to 27 inches; pale yellow (2.5Y 7/4) sand; common medium prominent strong brown (7.5YR 5/8) mottles; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.

E2—27 to 38 inches; pale yellow (2.5Y 7/4) sand; common medium distinct light gray (10YR 7/2) and yellowish brown (10YR 5/8) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

Btg1—38 to 44 inches; light gray (10YR 7/2) sandy loam; common medium distinct yellowish brown (10YR 5/6) and pale yellow (2.5Y 7/4) mottles; weak fine granular structure; very friable; sand grains coated with clay; very strongly acid; gradual wavy boundary.

Btg2—44 to 80 inches; light gray (10YR 7/2) sandy loam; common medium distinct brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) mottles and few fine prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains bridged with clay; few faint clay films on faces of peds and in pores; 2 percent plinthite; strongly acid.

Thickness of the solum is 65 inches or more. This soil is extremely acid to strongly acid throughout, except for the surface layer in areas that have been limed. Depth to the upper boundary of the argillic horizon ranges from 24 to 40 inches.

The A horizon or Ap horizon is 4 to 12 inches thick. It has hue of 10YR or 5Y, value of 2 to 4, and chroma of 1 or 2; hue of 2.5Y, value of 3 or 4, and chroma of 2; or it is neutral and has value of 2 to 4.

Some pedons have an E horizon less than 2 inches thick above the Bh horizon. The E horizon, if present, has hue of 10YR or 5Y, value of 5 to 8, and chroma of 3 or 4; or hue of 2.5Y, value of 5 to 8, and chroma 4 or 6. Some pedons have a gray matrix in the lower part of the E horizon. Brownish, yellowish, and grayish mottles are few to many. The E horizon is sand or fine sand.

The Bh horizon has hue of 5YR, value of 2 to 4, and chroma of 1 or 2; value of 3 or 4, and chroma of 3 or 4; hue of 7.5YR, value of 3 or 4, and chroma of 2 or 4; hue of 10YR, value of 2 or 3, and chroma of 1 or 2; or hue of 10YR, value of 3, and chroma of 3. Most sand grains are coated with organic matter. The Bh horizon is sand or fine sand.

The Btg horizon has hue of 10YR or 5Y, value of 6 or 7, and chroma of 1 to 3; or hue of 2.5Y, value of 6 or 7, and chroma of 2 or 4. It has few to many reddish, brownish, yellowish, and grayish mottles. In some pedons, the Btg horizon is mottled in these colors. It is sandy clay loam, sandy loam, or fine sandy loam. Plinthite is less than 3 percent.

Sapelo Series

The Sapelo series consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediment. These soils are on uplands in the Atlantic Coast Flatwoods. The water table is at a depth of 0.5 foot to 1.5 feet from late in fall to midspring. Slope is 0 to 2 percent.

Sapelo soils are associated with Albany, Leefield, Rigdon, and Pelham soils. Somewhat poorly drained Albany and Leefield soils and poorly drained Pelham soils do not have a spodic horizon. Albany soils are grossarenic; Leefield and Pelham soils are arenic. Somewhat poorly drained Rigdon soils have a Bh horizon above an E horizon; they have a Bt horizon at a depth of 24 to 40 inches.

Typical pedon of Sapelo fine sand; 4.5 miles east of Broxton on a paved county road, 0.5 mile east on a road from Providence Church, 50 feet south of the road; in Coffee County:

A—0 to 4 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; many fine grass roots and few medium scrub roots; many clean sand grains that give a salt-and-pepper appearance; very strongly acid; clear smooth boundary.

E—4 to 11 inches; light gray (10YR 7/1) fine sand; single grained; loose; common fine roots; strongly acid; abrupt wavy boundary.

Bh1—11 to 13 inches; black (5YR 2/1) fine sand; massive in place, parting to weak fine granular structure; few fine roots; many sand grains coated with organic matter; few clean sand grains; very strongly acid; clear wavy boundary.

Bh2—13 to 17 inches; dark brown (7.5YR 4/4) fine sand; weak fine granular structure; weakly cemented; few fine roots; many sand grains coated with organic matter; very strongly acid; clear wavy boundary.

Bh/BC—17 to 20 inches; dark brown (10YR 3/3) fine sand; common medium distinct very pale brown (10YR 7/4) mottles; weak fine granular structure; friable with weakly cemented bodies; few fine roots; many sand grains coated with organic matter; few clean sand grains; very strongly acid; clear wavy boundary.

E'—20 to 50 inches; pale brown (10YR 6/3) fine sand; common medium distinct strong brown (7.5YR 5/6) mottles; single grained; loose; common clean sand grains; very strongly acid; clear wavy boundary.

Btg—50 to 70 inches; light gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; very strongly acid.

Thickness of the solum is 70 to 90 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon or Ap horizon is 3 to 5 inches thick. It has hue of IOYR, value of 2 to 4, and chroma of 1. The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3; or value of 2, and chroma of 1 or 2.

The Bh horizon has hue of 10YR or 5YR, value of 3 or 4, and chroma of 1 to 4; hue of 10YR or 5YR, value of 2, and chroma of 1 or 2; or hue of 7.5YR, value of 3 or 4, and chroma of 2 or 4. The Bh/BC horizon has hue of 10YR, value of 3 to 6, and chroma of 3 or 4.

The E' horizon has hue of 2.5Y, value of 5 to 8, and chroma of 2 or 4; or hue of 10YR, value of 5 to 8, and chroma of 2 to 4. It has common or many reddish, brownish, and yellowish mottles throughout.

The Btg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2; hue of 2.5Y, value of 5 to 7, and chroma of 2 or 4; or it is neutral and has value of 5 to 7. The Bt horizon is sandy loam or sandy clay loam. Some pedons have few or common yellowish, brownish, and reddish mottles.

Stilson Series

The Stilson series consists of moderately well drained, moderately permeable soils that formed in sandy and loamy marine sediment. They are on uplands of the Atlantic Coast Flatwoods and the Southern Coastal Plain. The water table is at a depth of 2.5 to 3 feet from late in fall to midspring. Slope is 0 to 2 percent.

Stilson soils are associated with Dothan, Fuquay, Leefield, Pelham, and Tifton soils. Dothan, Fuquay, and Tifton soils are well drained; Dothan and Tifton soils are not arenic. Leefield soils are somewhat poorly drained. Pelham soils are poorly drained and do not contain plinthite.

Typical pedon of Stilson loamy sand, 0 to 2 percent slopes; 1.6 miles north on Georgia Highway 64 from the intersection with Georgia Highway 158, 50 feet east of the highway; in Coffee County:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; few small nodules of ironstone; strongly acid; abrupt smooth boundary.

E—8 to 24 inches; pale yellow (2.5Y 7/4) loamy sand; weak fine granular structure; very friable; common fine roots; few small nodules of ironstone; strongly acid; clear wavy boundary.

Bt1—24 to 28 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; very friable; few small nodules of ironstone; very strongly acid; gradual wavy boundary.

Bt2—28 to 38 inches; brownish yellow (10YR 6/6) sandy clay loam; common fine faint yellowish brown mottles; moderate medium subangular blocky structure; friable; few fine pores; few small nodules of ironstone; few faint patchy clay films on faces of some peds; about 3 percent plinthite; very strongly acid; gradual wavy boundary.

Btv1—38 to 45 inches; yellow (10YR 7/6) sandy clay loam; common fine distinct light gray (10YR 7/1) and yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine pores; few small nodules of ironstone; few distinct patchy clay films on faces of peds; about 20 percent nodular plinthite; very strongly acid; gradual wavy boundary.

Btv2—45 to 65 inches; yellow (10YR 7/6) sandy clay loam; many large distinct light gray (10YR 7/1) mottles, medium prominent yellowish red (5YR 4/6) mottles, and many large faint yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine pores; few small nodules of ironstone; few distinct patchy clay films on faces of peds; about 15 percent nodular plinthite; very strongly acid; gradual wavy boundary.

Btv3—65 to 70 inches; mottled light gray (10YR 7/2), yellowish brown (10YR 5/8), yellowish red (5YR 5/8), and yellow (10YR 7/6) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few small pebbles of ironstone; about 5 percent plinthite; very strongly acid.

Thickness of the solum is 60 to 80 inches or more. This soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Some pedons have a few nodules of ironstone throughout. Depth to the horizon containing 5 percent or more plinthite is 30 to 50 inches.

The sandy epipedon is 20 to 40 inches thick. The A horizon or Ap horizon is 5 to 8 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The E horizon is 16 to 32 inches thick. It has hue of 2.5Y, value of 5 to 7, and chroma of 2 or 4; or hue of 10YR, value of 5 or 6, and chroma of 2 to 4.

The Bt horizon has hue of 10YR, value of 6, and chroma of 6; or hue of 2.5YR, value of 6, and chroma of 4. Mottles are strong brown or yellowish brown. The upper part of the Btv horizon has hue of 10YR, value of 6 or 7, and chroma of 6; or hue of 2.5YR, value of 6, and chroma of 4. Mottles are brownish, reddish, yellowish, or grayish; the grayish mottles are at a depth of 30 to 40 inches. The lower part of the Btv horizon is mottled brownish, yellowish, reddish, or grayish. Plinthite ranges from 5 to 20 percent.

Sunsweet Series

The Sunsweet series consists of well drained, moderately slowly permeable soils that formed mainly in clayey marine sediment. Sunsweet soils are on uplands of the Southern Coastal Plain. Slope is is 8 to 17 percent.

Sunsweet soils are associated with Carnegie, Cowarts, and Tifton soils. Carnegie soils have 5 percent or more plinthite between a depth of 19 to 22 inches. Cowarts and Tifton soils are in a fine-loamy family. Cowarts soils have a thinner solum and do not contain as much as 5 percent plinthite; Tifton soils contain 5 percent or more plinthite below a depth of 30 inches.

Typical pedon of Sunsweet gravelly sandy loam, from an area of Cowarts-Sunsweet complex, 8 to 17 percent slopes, eroded; 0.9 mile west of Seventeen Mile Creek on Georgia Highway 158, 0.2 mile southeast and 0.9 mile south on a dirt road from Georgia Highway 158, 200 feet west of the road; in Coffee County:

Apc—0 to 5 inches; dark brown (10YR 4/3) gravelly sandy loam; weak fine granular structure; very friable; many fine and medium roots; about 18 percent dark red and reddish brown nodules of ironstone 0.12 to 0.50 inch in diameter; very strongly acid; abrupt wavy boundary.

Btvc—5 to 12 inches; yellowish red (5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; common fine and medium roots; few distinct patchy clay films on faces of peds; 10 percent small nodules of ironstone; 10 percent plinthite; very strongly acid; clear wavy boundary.

Btv1—12 to 22 inches; coarsely mottled yellowish brown (10YR 5/8), light gray (10YR 7/2), and weak red (10R 4/3) clay; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; few small nodules of ironstone; 10 percent plinthite; very strongly acid; clear wavy boundary.

Btv2—22 to 65 inches; coarsely mottled light gray (10YR 7/2), weak red (10R 4/3), and strong brown (7.5YR 5/8) sandy clay; moderate medium angular blocky structure; firm; few distinct clay films on faces of peds; 15 percent plinthite; very strongly acid.

Thickness of the solum is 60 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed. Depth to the horizon containing 5 percent or more plinthite is 5 to 12 inches.

The Apc horizon is 3 to 6 inches thick. It has hue of 10YR, value of 4, and chroma of 2 or 3. Nodules of ironstone make up 5 to 20 percent by volume.

The Btvc horizon has hue of 5YR, value of 4, and chroma of 6 or 8. Content of nodules of ironstone is up to 15 percent in some pedons. Plinthite makes up 5 to 10 percent.

The Btv1 horizon has hue of 5YR, value of 4, and chroma 6; or hue of 10YR, value of 5, and chroma of 6; and has brownish, reddish, and grayish mottles; or the Btv1 horizon is mottled brownish, reddish, and grayish. The gray mottles are lithochromic and do not represent wetness. Content of nodules of ironstone is up to 5 percent in some pedons; plinthite makes up 5 to 15 percent. The Btv1 horizon is sandy clay or clay.

Surrency Series

The Surrency series consists of very poorly drained soils that have rapid permeability in the surface and subsurface layers and moderate permeability in the subsoil. These soils formed in sandy and loamy marine sediment. They are on uplands of the Atlantic Coast Flatwoods. This soil generally is ponded or the water table is at a depth of less than 1 foot from late in fall to midspring. Slope is less than 1 percent.

Surrency soils are associated with Albany, Blanton, Pelham, Rigdon, and Sapelo soils. These associated soils do not have an umbric epipedon. Somewhat poorly drained Albany soils and moderately well drained Blanton soils are grossarenic. Pelham soils are poorly drained. Somewhat poorly drained Rigdon soils and poorly drained Sapelo soils have a Bh horizon.

Typical pedon of Surrency loamy sand, ponded, 5.4 miles east on Georgia Highway 158 from the junction of U.S. Highway 441 in Douglas, 50 feet north of Georgia Highway 158; in Coffee County:

A1—0 to 8 inches; black (N 2/0) loamy sand; weak fine granular structure; very friable; many fine and medium roots; about 10 percent organic matter; very strongly acid; clear smooth boundary.

A2—8 to 13 inches; very dark gray (10YR 3/1) sand; single grained; loose; few fine and medium roots; very strongly acid; clear smooth boundary.

E—13 to 36 inches; light brownish gray (2.5Y 6/2) sand; single grained; loose; few fine roots; many uncoated sand grains; very strongly acid; clear wavy boundary.

Btg1—36 to 44 inches; light brownish gray (10YR 6/2) sandy loam with pockets of loamy sand; common fine distinct yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; very friable; some grains coated with clay; very strongly acid; clear wavy boundary.

Btg2—44 to 62 inches; light brownish gray (10YR 6/2) sandy clay loam with pockets of loamy sand; common medium distinct yellowish brown (10YR 5/8) and gray (5YR 5/1) mottles; weak fine subangular blocky structure; sand grains coated with clay; friable; very strongly acid.

Thickness of the solum is 62 inches or more. The soil is very strongly acid or extremely acid throughout.

The sandy epipedon is 32 to 38 inches thick. The A horizon is 12 to 16 inches thick. It has hue of 10YR, value of 2 or 3, and chroma of 1; or it is neutral and has value of 2. The E horizon is 15 to 24 inches thick. It has hue of 2.5Y or 10YR, value of 6 or 7, and chroma of 2; or hue of 10YR, value of 7, and chroma of 1.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has common or many yellowish, brownish, and grayish mottles throughout. It is sandy clay loam or sandy loam.

Tawcaw Series

The Tawcaw series consists of somewhat poorly drained, slowly permeable, soils that formed in clayey alluvial sediment. Tawcaw soils are on flood plains of the Ocmulgee River. The water table is at a depth of 1.5 to 2.5 feet from late in fall to midspring. Slope is 0 to 2 percent.

Tawcaw soils are associated with Chastain soils. Chastain soils are poorly drained and are in sloughs and on lower lying flood plains.

Typical pedon of Tawcaw clay loam, in an area of Chastain-Tawcaw complex, frequently flooded; 0.5 mile southeast on U.S. Highway 441 from the Ocmulgee River to a private north-south road that joins U.S. Highway 441 from the south, 0.82 mile south on the private road, 200 feet west; in Coffee County:

A—0 to 5 inches; dark brown (7.5YR 4/4) clay loam; weak fine granular structure; very friable; many very fine and fine roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

Bw1—5 to 11 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; common very fine roots; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw2—11 to 20 inches; yellowish brown (10YR 5/4) clay; common fine prominent light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; firm; few very fine roots; few very fine flakes of mica; very strongly acid; gradual wavy boundary.

Bg—20 to 60 inches; light gray (10YR 7/1) silty clay loam; many fine prominent strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; firm; many small manganese concretions; strongly acid; gradual wavy boundary.

C—60 to 90 inches; light gray (2.5Y 7/2) sand; many medium prominent strong brown (7.5YR 5/6) mottles; single grained; loose; common small manganese concretions; strongly acid.

Thickness of the solum is 50 inches or more. The soil is moderately acid to very strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon is 3 to 10 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 3 or 4; or hue of 7.5YR, value of 3 or 4, and chroma of 4. Some pedons have few or common mottles.

The BA horizon, if present, has hue of 10YR, value of 4, and chroma of 3 or 4; or hue of 7.5YR, value of 4, and chroma of 4. Some pedons have few or common mottles that have hue of 10YR, value of 5 to 7, and chroma of 1 to 3.

The Bw horizon has hue of 5YR or 10YR, value of 4 to 6, and chroma of 3 or 4; or hue of 7.5YR, value of 4 to 6, and chroma of 4. It has few to many fine or medium mottles that have hue of 10YR, value of 5 to 7, and chroma of 1 to 4 or 6; or hue of 7.5YR, value of 5 to 7, and chroma of 2, 4, or 6. The Bw horizon is clay loam, clay, silty clay loam, or silty clay.

The Bg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Mottles are strong brown, brown, and yellowish brown. The Bg horizon is silty clay loam, sandy clay loam, or sandy clay.

The BC horizon, if present, generally is gray and has few to many brown or yellow mottles. It is silty clay loam or clay loam.

The C horizon has the same range of colors as the Bg horizon, or it is mottled grayish and brownish. The texture is variable.

The Tawcaw soils in the survey area are considered a taxadjunct to the series because the clay mineralogy is mixed rather than kaolinitic. There is no significant difference in use, management, or behavior.

Tifton Series

The Tifton series consists of well drained, moderately permeable soils that formed predominantly in clayey marine sediment on uplands of the Southern Coastal Plain. Slope is 0 to 5 percent.

Tifton soils are associated with Carnegie, Clarendon, and Dothan soils. Carnegie soils are in a clayey family and have 5 percent or more plinthite at a depth of 19 to 22 inches. Clarendon and Dothan soils contain fewer nodules of ironstone; also, Clarendon soils are moderately well drained.

Typical pedon of Tifton loamy sand, 2 to 5 percent slopes; 5.8 miles west on Georgia Highway 158 from the junction of Highway 441 in Douglas, 1.2 miles north on the county road from St. Illa Church, 0.5 mile east on a county road, 0.5 mile north on a county road, 150 feet east of the road; in Coffee County:

Apc—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; 15 percent nodules of ironstone 0.12 to 0.5 inch in diameter; strongly acid; abrupt smooth boundary.

Btc1—9 to 11 inches; yellowish brown (10YR 5/8) sandy loam; weak fine subangular blocky structure; very friable; 10 percent small nodules of ironstone; strongly acid; clear wavy boundary.

Btc2—11 to 20 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; few faint clay films on faces of peds; 5 percent small nodules of ironstone; very strongly acid; gradual wavy boundary.

Btc3—20 to 35 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium faint strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; 5 percent small nodules of ironstone; 3 percent nodular plinthite; very strongly acid; gradual smooth boundary.

Btv1—35 to 48 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct light yellowish brown (2.5Y 6/4) and yellowish brown (10YR 5/8) mottles and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; 10 percent predominantly nodular plinthite; very strongly acid; gradual smooth boundary.

Btv2—48 to 65 inches; reticulately mottled yellowish brown (10YR 5/8), red (2.5YR 4/6), and light gray (10YR 7/2) sandy clay; weak medium subangular blocky structure; firm; few pockets of sandy clay loam; few prominent clay films on faces of peds; 5 percent predominantly nodular plinthite; very strongly acid.

Thickness of the solum is 60 inches or more. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed. Depth to horizons containing 5 percent or more plinthite is 26 to 40 inches.

The A horizon is 6 to 10 inches thick. The A horizon has hue of 10YR, value of 4, and chroma of 2 or 3. The E horizon, if present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6. Nodules of ironstone make up 10 to 25 percent, by volume, of the A and E horizons.

The Btc horizons have hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8. The Btv2 horizon is reticulately mottled reddish, brownish, and grayish, or it has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8. Plinthite ranges from 5 to 15 percent in the Btv1 and Btv2 horizons. Nodules of ironstone range from 5 to 15 percent in the upper part of the B horizons from 1 to 10 percent in the middle and lower parts.

Troup Series

The Troup series consists of well drained soils that formed in thick sandy and loamy marine sediment. These soils have rapid permeability in the surface and subsurface layers and moderate permeability in the subsoil. Troup soils are on uplands of the Southern Coastal Plain. Slope is 8 to 17 percent.

Troup soils are associated with Ailey, Albany, Bonifay, and Fuquay soils. Ailey soils have a hard and brittle layer in the subsoil and are arenic. Albany soils are somewhat poorly drained. Bonifay and Fuquay soils contain plinthite; also, Fuquay soils are arenic.

Typical pedon of Troup coarse sand, from an area of Troup-Ailey coarse sands, 8 to 17 percent slopes; 4 miles north on a dirt road from Alma Airport, 130 feet east of Fourth Street Extension; in Bacon County:

A—0 to 4 inches; dark grayish brown (10YR 4/2) coarse sand; weak fine granular structure; very friable; few fine and medium roots; very strongly acid; clear wavy boundary.

E1—4 to 18 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; few uncoated sand grains; few fine roots; very strongly acid; gradual wavy boundary.

E2—18 to 50 inches; very pale brown (10YR 7/4) sand; single grained; loose; some uncoated sand grains; very strongly acid; gradual wavy boundary.

E3—50 to 60 inches; yellowish red (5YR 4/6) loamy sand; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

Bt1—60 to 65 inches; red (2.5YR 4/6) sandy loam; weak fine subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Bt2—65 to 80 inches; red (2.5YR 4/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid.

Thickness of the solum is 80 to 120 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The sandy epipedon is 41 to 72 inches thick. The Ap horizon or A horizon is 2 to 4 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2. The E horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 4 or 6; or hue of 5YR, value of 4, and chroma of 6.

The Bt horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6; or hue of 2.5YR to 10YR, value of 5 or 6, and chroma of 8. It is sandy loam or sandy clay loam.

Wahee Series

The Wahee series consists of somewhat poorly drained, slowly permeable soils that formed in loamy and clayey sediment. These soils are on stream terraces mainly near the Alapaha River. The water table is at a depth of 0.5 foot to 1.5 feet from late in fall to early in spring. Slope is 0 to 2 percent.

Wahee soils are associated with Bibb, Osier, and Ousley soils. The associated soils do not have an argillic horizon. Also, Bibb and Osier soils are poorly drained; Ousley soils are moderately well drained.

Typical pedon of Wahee fine sandy loam, frequently flooded; 4.7 miles south on Spring Head Church Road from the junction with Georgia Highway 135 near Willacoochee, 1.3 miles east of the road; in Atkinson County:

A—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

E—6 to 10 inches; yellowish brown (10YR 5/4) fine sandy loam; few fine faint light brownish gray mottles; few very dark grayish brown (10YR 3/2) wormcasts from A horizon, weak medium granular structure; friable; many fine and medium roots; very strongly acid; clear wavy boundary.

Bt—10 to 18 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine faint light brownish gray mottles; moderate medium subangular blocky structure; firm; common medium roots; gray silt coatings on faces of peds; very strongly acid; gradual wavy boundary.

Btg1—18 to 45 inches; light gray (10YR 6/1) sandy clay; common medium distinct yellowish brown (10YR 5/8), strong brown (7.5YR 5/8), and brown (10YR 5/3) mottles; weak coarse prismatic structure parting to strong medium subangular blocky; firm, plastic; few medium roots; few prominent clay films on faces of peds; very strongly acid; clear wavy boundary.

Btg2—45 to 55 inches; light brownish gray (10YR 6/2) sandy clay; many coarse distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to strong medium subangular blocky; firm, slightly sticky; few medium roots; few fine pores; few distinct clay films on vertical faces of peds; very strongly acid; gradual wavy boundary.

BC—55 to 60 inches; mottled light brownish gray (10YR 6/2) and yellowish brown(10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Cg—60 to 80 inches; light brownish gray (10YR 6/2) sandy loam; common medium distinct yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) mottles; massive; very friable; few medium roots; very strongly acid; gradual wavy boundary.

Thickness of the solum is 40 to 60 inches or more. The soil is very strongly acid or strongly acid throughout, except for the surface layer in areas that have been limed.

The A horizon or Ap horizon is 4 to 8 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 3. The E horizon, if present, is 1 to 6 inches thick. It has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The BE horizon, if present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6. The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8. The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has common or many yellowish, brownish, and reddish mottles. The Btg horizon generally is sandy clay but ranges to clay loam. The BC horizon, if present, is mottled grayish, brownish, yellowish, and reddish, or it has a matrix hue of 10YR, value of 6 or 7, and chroma of 1, and yellowish, brownish, and yellowish red mottles.

The Cg horizon, if present, has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. Some pedons have yellowish or brownish mottles. The Cg horizon is loamy sand or sandy loam.

Wicksburg Series

The Wicksburg series consists of well drained soils that formed in sandy and clayey marine sediment. These soils have rapid permeability in the surface and subsurface layers and slow permeability in the subsoil. These soils are on uplands of the Southern Coastal Plain. Slope is 2 to 8 percent.

Wicksburg soils are associated with Ailey, Bonifay, Esto, and Troup soils. Ailey soils have dense properties in the subsoil. Bonifay and Troup soils are grossarenic. Also, Bonifay soils contain plinthite. Esto soils have a sandy epipedon less than 9 inches thick.

Typical pedon of Wicksburg loamy sand, 5 to 8 percent slopes; 2 miles east on Georgia Highway 107 from the junction with U.S. Highway 441 to Relee Church, 1.9 miles east on Georgia Highway 107 from Relee Church, 1.2 miles south on a dirt road, 600 feet south of the road; in Coffee County:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak medium granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

E1—9 to 18 inches; light yellowish brown (10YR 6/4) loamy sand; weak medium granular structure; very friable; common fine roots; common quartz gravel; very strongly acid; abrupt wavy boundary.

E2—18 to 24 inches; pale yellow (2.5Y 7/4) loamy sand; weak fine granular structure; very friable; common fine roots; few quartz pebbles; strongly acid; clear wavy boundary.

Bt1—24 to 32 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt2—32 to 44 inches; brownish yellow (10YR 6/6) sandy clay; common medium distinct red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3—44 to 65 inches; brownish yellow (10YR 6/6) clay; common medium distinct red (2.5YR 4/6) and light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; firm; few prominent clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt4—65 to 72 inches; coarsely mottled brownish yellow (10YR 6/6), red (2.5YR 4/6), and light gray (10YR 7/2) sandy clay; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; strongly acid.

Thickness of the solum is 72 inches or more. The soil is strongly acid or very strongly acid throughout, except for the surface layer in areas that have been limed.

The sandy epipedon is 22 to 35 inches thick. The A horizon or Ap horizon is 6 to 10 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8. The Bt2 and Bt3 horizons commonly contain brownish or reddish and grayish mottles. The Bt horizon is sandy clay but ranges to clay or sandy clay loam in the upper few inches. The BC horizon, if present, is mottled yellowish, reddish, and grayish. It is sandy clay or clay.

Formation of the Soils

This section discusses the factors of soil formation and relates them to soils in the survey area. It also explains the processes of soil formation.

Factors of Soil Formation

Soil characteristics are determined by the physical and mineral composition of the parent material; the climate under which the parent material accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material *(4)*. All of these factors influence every soil, but the significance of each factor varies from place to place. In one area, one factor may dominate soil formation; in another area, a different factor may be the most important.

The interrelationship among these five factors is complex, and the effects of any one factor cannot be isolated and completely evaluated. It is convenient, however, to discuss each factor separately and to indicate the probable effects of each.

Plants and Animals

The role of plants, animals, and other organisms is significant in soil development. Plants and animals increase the amounts of organic matter and nitrogen, increase or decrease content of plant nutrients, and change soil structure and porosity.

Plants recycle nutrients, accumulate organic matter, and provide food and cover for animals. Plants stabilize the surface layer so that soil-forming processes can continue. Vegetation also provides a more stable environment for soil-forming processes by protecting the soils from extremes in temperature.

The soils in Atkinson, Bacon, and Coffee Counties formed under a succession of briers, brambles, and woody plants that yielded to pines and hardwood trees. Later, the hardwoods suppressed most other plants and became the climax vegetation.

Animals rearrange soil material by roughening the surface, forming and filling channels, and shaping the peds and voids. The soil is mixed by ants, wasps, worms, and spiders that make channels; by crustacea, such as crabs and crayfish; and by turtles and foxes that dig burrows. Man affects the soil-forming process by tilling the soil for crops, removing natural vegetation and establishing different plants, and reducing or increasing fertility.

Bacteria, fungi, and other micro-organisms hasten decomposition of organic matter and increase the release of minerals for plant growth.

The net gains and losses caused by plants and animals in the soil-forming process are important in Atkinson, Bacon, and Coffee Counties. The relationship between plants and animals, climate, and parent material is very close; therefore, the soils do not differ significantly because of the role of plants and animals.

Climate

The present climate of Atkinson, Bacon, and Coffee Counties is thought to be similar to the climate that existed as the soils formed. The relatively high rainfall and warm temperature contribute to rapid soil formation and are the two most important climatic features that relate to soil properties.

Water from precipitation, is essential in the formation of soil. Water dissolves soluble materials and is used by plants and animals. It transports material from one part of the soil to another part or from one area to another area.

Soils in Atkinson, Bacon, and Coffee Counties formed under a thermic temperature regime; that is, the mean soil temperature at a depth of 20 inches is 59 to 72 degrees F. Based on the mean annual air temperature, it is estimated the soil temperature in Atkinson, Bacon, and Coffee Counties is about 67 to 68 degrees F. The rate of chemical reactions and other processes in the soil depends to some extent on temperature. Also, temperature affects the type and quantity of vegetation, the amount and kind of organic matter, and the rate of decomposition of organic matter.

Relief

Relief is the elevations, or inequalities, of land surface considered collectively. Color of the soil, wetness, thickness of the A horizon, content of organic matter, and plant cover are generally related to relief. In Atkinson, Bacon, and Coffee Counties, the obvious effects of relief are color of the soil and wetness.

Dothan and Tifton soils have mainly a yellowish brown subsoil; Bayboro and Pelham soils are primarily gray throughout the subsoil. This color difference results from a difference in relief and a corresponding difference in internal drainage. Dothan and Tifton soils are higher lying and better drained than the other soils; therefore, the soil material is better oxidized and the subsoil is browner.

The movement of water across the surface and through the soil is controlled to a large extent by relief. Water flowing over the soil generally carries solid particles and causes erosion or deposition, depending on the kind of relief. More water runs off sloping areas and less water enters the soil, so the soils are drier. Lower lying areas receive the water that flows off and through the higher soils and are generally wetter.

Parent Material

Parent material is the unconsolidated mass in which soil forms. It is largely responsible for the chemical and mineralogical compositon of the soil. The survey area is underlain by Coastal Plain sedimentary rock *(5)*. Sandy and loamy marine sediment generally overlie the rock.

The Neogene Undifferentiated Formation of the Tertiary Period makes up the parent material for the soils on the uplands in much of Coffee County and the most northern part of Atkinson County. In addition, it makes up the parent material for the soils on the uplands that are near the major rivers and creeks in the rest of the survey area. Well drained Carnegie, Cowarts, Dothan, Fuquay, and Tifton soils are the main soils formed. Most of these soils are nearly level to gently sloping. They have a brownish, predominantly sandy surface layer, and mainly a brownish, loamy subsoil that generally is mottled in the middle and lower parts. Of lesser extent are the somewhat poorly drained Leefield soils and the moderately well drained Clarendon and Stilson soils. Most of these soils are nearly level. They have brownish, sandy surface and subsurface layers and a mottled, loamy subsoil that is brownish in the upper part and grayish in the lower part.

The Pleistocene-Pliocene Sands and Gravel Formation makes up the parent material for the soils on the uplands in the rest of the survey area. Somewhat poorly drained Albany and Rigdon soils, poorly drained Pelham and Sapelo soils, and very poorly drained Dasher and Surrency soils are the main soils formed. These soils are nearly level; in some places, several of the soils are periodically ponded or occasionally flooded. The somewhat poorly drained soils have a sandy surface and subsurface layer. The surface layer is brownish to grayish, and the subsurface layer is brownish or yellowish and is mottled or organically stained, or both. The loamy subsoil is yellowish to grayish and mottled. The poorly drained soils have a sandy surface and subsurface layer. The surface layer is grayish, and the subsurface layer is brownish to grayish and is mottled or organically stained, or both. The loamy subsoil is grayish and mottled. The very poorly drained soils are black and brownish, decomposed organic material throughout; or they have a black surface layer and grayish subsurface layer that are sandy and a grayish, mottled, loamy subsoil. Of lesser extent are the somewhat excessively drained Cainhoy soils and the very poorly drained Bayboro soils.

Stream alluvium is adjacent to all the streams in the survey area. The soils in this alluvium formed in more recent sediment than the soils on uplands. Poorly drained Chastain soils and somewhat poorly drained Tawcaw soils are the main soils on the flood plains near the Ocumulgee River. These soils are nearly level and clayey throughout. The poorly drained soils have a brownish surface layer and a grayish, mottled subsoil. The somewhat poorly drained soils have a brownish surface layer and a predominantly grayish, mottled subsoil. Poorly drained Bibb and Osier soils are the main soils on the flood plains near the Alapaha and Willacoochee Rivers. These soils are nearly level and sandy or loamy throughout. They have a brownish surface layer and are predominantly grayish below. Very poorly drained Johnston soils and poorly drained Kinston soils are the main soils on the flood plains near the Satilla River and Big Satilla, Hurricane, Little Hurricane, and Seventeen Mile Creeks. These soils are nearly level. The very poorly drained soils have a thick black mucky loam surface layer and are grayish sand below. The poorly drained soils are loamy throughout. They have a brownish surface layer and mottled grayish underlying material. Of lesser extent are the moderately well drained Ousley soils.

Time

The length of time that soil-forming factors act on the parent material determines to a large degree the characteristics of the soil. Determinations of when soil formation began in the survey area are not exact, but most soils in Atkinson, Bacon, and Coffee Counties are considered mature. A mature soil is in equilibrium with the environment. It has readily recognized pedogenic horizons and a regular decrease in content of carbon with depth. Some areas of Dothan and Tifton soils are on rather broad, stable landscapes where the soil-forming processes have been active for thousands of years. These mature soils have a thick solum and a well expressed zone of illuviation.

Osier soils receive sediment annually from floodwaters. These young soils are stratified and are not old enough to have a zone of illuviation. Young soils do not have pedogenic horizons. Content of carbon decreases irregularly with depth.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms:clay coating, clay skin.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-80 at Douglas, Georgia]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	60.4	36.6	48.5	78	17	153	4.24	2.28	5.97	7	.0
February---	63.0	37.9	50.5	82	20	133	4.37	2.17	6.26	6	.1
March------	70.8	45.0	57.9	87	25	272	4.50	2.13	6.53	7	.0
April------	79.0	52.6	65.8	91	36	474	3.66	1.51	5.48	5	.0
May--------	85.1	59.9	72.5	96	45	698	4.44	1.77	6.72	7	.0
June-------	89.7	66.5	78.1	100	55	843	5.17	2.61	7.39	8	.0
July-------	91.8	69.7	80.8	99	61	955	6.12	3.55	8.40	10	.0
August-----	91.6	69.3	80.5	98	61	946	6.05	3.74	8.13	9	.0
September--	87.3	65.3	76.3	96	51	789	4.26	1.76	6.37	6	.0
October----	79.0	53.1	66.1	92	35	499	2.17	.48	3.51	3	.0
November---	70.2	43.3	56.8	85	24	226	1.96	.68	3.01	4	.0
December---	61.8	36.6	49.2	81	20	92	3.92	2.16	5.46	6	.0
Yearly:											
Average--	77.5	53.0	65.3	---	---	---	---	---	---	---	---
Extreme--	---	---	---	100	14	---	---	---	---	---	---
Total----	---	---	---	---	---	6,080	50.86	43.59	58.19	78	.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 °F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-80
at Douglas, Georgia]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 6	March 14	March 30
2 years in 10 later than--	February 25	March 7	March 23
5 years in 10 later than--	February 7	February 20	March 10
First freezing temperature in fall:			
1 year in 10 earlier than--	November 19	November 10	October 28
2 years in 10 earlier than--	November 29	November 16	November 3
5 years in 10 earlier than--	December 18	November 28	November 14

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-80
at Douglas, Georgia]

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	282	250	221
8 years in 10	291	260	231
5 years in 10	311	280	248
2 years in 10	342	301	266
1 year in 10	>365	311	275

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Atkinson County	Bacon County	Coffee County	Total--	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
AeC	Ailey loamy coarse sand, 2 to 8 percent slopes	3,000	1,600	3,500	8,100	1.0
AoA	Albany sand, 0 to 2 percent slopes	9,000	4,190	24,090	37,280	4.8
Ba	Bayboro loam, ponded	300	350	880	1,530	0.2
BbB	Blanton sand, 0 to 8 percent slopes	5,200	300	1,920	7,420	0.9
BgC	Blanton fine gravelly sand, 2 to 8 percent slopes	0	0	140	140	*
BoC	Bonifay sand, 2 to 8 percent slopes	2,000	1,400	10,500	13,900	1.8
CbB	Cainhoy sand, 0 to 5 percent slopes	2,500	100	0	2,600	0.3
CeB2	Carnegie sandy loam, 3 to 5 percent slopes, eroded	2,100	3,880	26,115	32,095	4.1
CgC2	Carnegie-Cowarts complex, 5 to 8 percent slopes, eroded	2,860	3,570	19,505	25,935	3.3
Ch	Chastain-Tawcaw complex, frequently flooded	0	0	4,550	4,550	0.6
CnA	Clarendon loamy sand, 0 to 2 percent slopes	5,000	6,130	8,280	19,410	2.5
CnB	Clarendon loamy sand, 2 to 5 percent slopes	600	2,730	7,410	10,740	1.4
CsD2	Cowarts-Sunsweet complex, 8 to 17 percent slopes, eroded	0	400	580	980	0.1
Da	Dasher muck, ponded	8,200	0	0	8,200	1.0
DoA	Dothan loamy sand, 0 to 2 percent slopes	40	600	840	1,480	0.2
DoB	Dothan loamy sand, 2 to 5 percent slopes	100	1,800	9,220	11,120	1.4
EoB	Esto loamy sand, 2 to 5 percent slopes	30	300	3,130	3,460	0.4
EoD	Esto loamy sand, 5 to 12 percent slopes	30	0	980	1,010	0.1
ErD	Esto-Rock outcrop complex, 5 to 12 percent slopes	0	0	1,090	1,090	0.1
FsB	Fuquay loamy sand, 1 to 5 percent slopes	16,800	20,300	33,650	70,750	9.0
KeC	Kershaw coarse sand, 2 to 8 percent slopes	7,120	3,600	10,480	21,200	2.7
KJ	Kinston and Johnston soils, frequently flooded	2,300	15,000	55,570	72,870	9.4
Le	Leefield loamy sand	38,510	34,790	31,490	104,790	13.4
Lu	Leefield-Urban land complex	0	0	300	300	*
OB	Osier-Bibb association, frequently flooded	2,100	0	470	2,570	0.3
Ou	Ousley loamy fine sand, occasionally flooded	300	140	50	490	0.1
Pd	Pelham sand, ponded	1,200	1,500	596	3,296	0.4
Pe	Pelham loamy sand, occasionally flooded	26,500	45,950	52,030	124,480	15.9
Rg	Rigdon sand	3,960	15,680	7,860	27,500	3.6
Sa	Sapelo fine sand	20,000	5,160	7,410	32,570	4.2
StA	Stilson loamy sand, 0 to 2 percent slopes	1,500	6,800	8,910	17,210	2.2
Su	Surrency loamy sand, ponded	29,800	4,700	9,100	43,600	5.6
TfA	Tifton loamy sand, 0 to 2 percent slopes	800	600	3,640	5,040	0.6
TfB	Tifton loamy sand, 2 to 5 percent slopes	10,000	5,300	43,780	59,080	7.6
TuB	Tifton-Urban land complex, 2 to 5 percent slopes	0	0	600	600	0.1
TyD	Troup-Ailey coarse sands, 8 to 17 percent slopes	400	400	940	1,740	0.2
Wa	Wahee fine sandy loam, frequently flooded	600	0	190	790	0.1
WcB	Wicksburg loamy sand, 2 to 5 percent slopes	100	100	850	1,050	0.1
WcC	Wicksburg loamy sand, 5 to 8 percent slopes	250	150	970	1,370	0.2
	Total	203,200	187,520	391,616	782,336	100.0

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* Less than 0.1 percent.

TABLE 5.--IMPORTANT FARMLAND

[Acreage is according to date fieldwork was completed. Soils not listed do not qualify as prime farmland or as additional land of statewide importance]

Map symbol and soil name	Prime farmland	Additional farmland of statewide importance
	Acres	Acres
AeC------------------ Ailey	---	8,100
AoA------------------ Albany	---	37,280
BbB------------------ Blanton	---	7,420
BgC------------------ Blanton	---	140
BoC------------------ Bonifay	---	13,900
CeB2----------------- Carnegie	32,095	---
CgC2----------------- Carnegie-Cowarts	---	25,935
CnA------------------ Clarendon	19,410	---
CnB------------------ Clarendon	10,740	---
DoA------------------ Dothan	1,480	---
DoB------------------ Dothan	11,120	---
EoB------------------ Esto	3,460	---
FsB------------------ Fuquay	---	70,750
Le------------------- Leefield	---	104,790
Ou------------------- Ousley	---	490
Rg------------------- Rigdon	---	27,500
Sta------------------ Stilson	---	17,210
TfA------------------ Tifton	5,040	---
TfB------------------ Tifton	59,080	---

TABLE 5.--IMPORTANT FARMLAND--Continued

Map symbol and soil name	Prime farmland	Additional farmland of statewide importance
	Acres	Acres
WcB------------------ Wicksburg	---	1,050
WcC------------------ Wicksburg	---	1,370
Total-----------	142,425	315,935

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE

[Yields in the N columns are for nonirrigated soils; those in the I columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability		Corn		Peanuts		Soybeans		Tobacco		Wheat		Improved bermudagrass	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	Bu	Bu	Lbs	Lbs	Bu	Bu	AUM*	AUM*
AeC------------- Ailey	IVs	---	45	70	2,000	2,700	20	25	---	1,700	20	25	5.0	6.0
AoA------------- Albany	IIIw	---	65	105	---	---	25	30	---	2,100	25	30	7.0	8.0
Ba-------------- Bayboro	VIw	---	---	---	---	---	---	---	---	---	---	---	---	---
BbB------------- Blanton	IIIs	---	60	160	2,200	3,850	25	45	---	2,000	25	45	8	10.5
BgC------------- Blanton	IVs	---	50	135	2,000	3,500	20	35	---	1,700	20	35	7.5	10.5
BoC------------- Bonifay	IIIs	---	60	160	2,200	3,850	25	45	---	2,000	25	45	7.5	10.0
CbB------------- Cainhoy	IVs	---	55	145	2,000	3,500	20	35	---	1,700	20	35	6.5	8.5
CeB2------------ Carnegie	IIIe	---	65	105	3,200	4,300	30	35	---	2,400	30	35	6.5	8.5
CgC2------------ Carnegie- Cowarts	IVe	---	57	90	2,200	3,000	23	28	---	2,000	23	28	6.4	8.5
Ch-------------- Chastain-Tawcaw	IVw	---	---	---	---	---	---	---	---	---	---	---	---	---
CnA------------- Clarendon	IIw	---	110	175	---	---	40	50	---	3,000	40	50	10.5	13.0
CnB------------- Clarendon	IIe	---	105	170	---	---	35	45	---	3,000	35	45	10.5	13.0
CsD2------------ Cowarts- Sunsweet	IVe	---	---	---	---	---	---	---	---	---	---	---	5.7	7.0
Da-------------- Dasher	VIIw	---	---	---	---	---	---	---	---	---	---	---	---	---
DoA------------- Dothan	I	---	120	190	3,800	5,100	40	45	---	3,000	45	55	10.5	14.0
DoB------------- Dothan	IIe	---	120	190	3,600	4,850	35	40	---	3,000	40	50	10.5	14.0
EoB------------- Esto	IIIe	---	50	80	1,700	2,300	25	30	---	2,000	25	30	6.0	7.5
EoD------------- Esto	VIe	---	---	---	---	---	---	---	---	---	---	---	5.5	7.0

See footnote at end of table.

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability		Corn		Peanuts		Soybeans		Tobacco		Wheat		Improved bermudagrass	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	Bu	Bu	Lbs	Lbs	Bu	Bu	AUM*	AUM*
ErD------------- Esto-Rock outcrop	VIIe	---	---	---	---	---	---	---	---	---	---	---	3.0	4.0
FsB------------- Fuquay	IIs	---	80	180	2,900	4,350	30	50	---	3,300	30	50	7.5	10.0
KeC------------- Kershaw	VIIs	---	---	---	---	---	---	---	---	---	---	---	3.5	4.5
KJ-------------- Kinston and Johnston	VIw	---	---	---	---	---	---	---	---	---	---	---	---	---
Le-------------- Leefield	IIw	---	85	135	---	---	30	35	---	2,300	30	35	8.7	11.0
Lu. Leefield-Urban land														
OB**------------ Osier-Bibb	Vw	---	---	---	---	---	---	---	---	---	---	---	---	---
Ou-------------- Ousley	IIIw	---	50	135	---	---	20	35	---	1,700	20	35	7.5	10.0
Pd, Pe---------- Pelham	Vw	---	---	---	---	---	---	---	---	---	---	---	---	---
Rg-------------- Rigdon	IIIw	---	85	135	---	---	30	35	---	2,300	30	35	7.5	9.5
Sa-------------- Sapelo	IVw	---	---	---	---	---	---	---	---	---	---	---	7.5	10.0
StA------------- Stilson	IIw	---	80	130	---	---	35	40	---	2,600	35	40	10.0	12.5
Su-------------- Surrency	VIw	---	---	---	---	---	---	---	---	---	---	---	---	---
TfA------------- Tifton	I	---	115	185	3,800	5,100	45	55	---	3,000	45	50	10.5	14.0
TfB------------- Tifton	IIe	---	115	185	3,800	5,100	45	55	---	3,000	45	50	10.5	14.0
TuB. Tifton-Urban land														
TyD------------- Troup-Ailey	VIIe	---	---	---	---	---	---	---	---	---	---	---	6.0	7.5
Wa-------------- Wahee	IVw	---	---	---	---	---	---	---	---	---	---	---	9.0	11.0

See footnote at end of table.

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability		Corn		Peanuts		Soybeans		Tobacco		Wheat		Improved bermudagrass	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	Bu	Bu	Lbs	Lbs	Bu	Bu	AUM*	AUM*
WcB------------- Wicksburg	IIs	---	60	160	3,000	4,000	25	30	---	2,900	25	30	7.0	9.5
WcC------------- Wicksburg	IIIs	---	50	130	2,600	3,500	20	25		2,800	20	25	6.5	8.5

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Dashes indicate no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I:				
Atkinson County	840	---	---	---
Bacon County	1,200	---	---	---
Coffee County	4,480	---	---	---
II:				
Atkinson County	72,610	10,700	45,010	16,900
Bacon County	77,950	9,830	47,720	20,400
Coffee County	143,599	60,410	48,680	34,500
III:				
Atkinson County	22,840	2,130	13,260	7,450
Bacon County	26,040	4,180	20,010	1,850
Coffee County	74,635	29,245	32,000	13,390
IV:				
Atkinson County	28,960	2,860	20,600	5,500
Bacon County	10,430	3,570	5,160	1,700
Coffee County	30,745	19,505	7,600	3,640
V:				
Atkinson County	29,800	---	29,800	---
Bacon County	47,450	---	47,450	---
Coffee County	53,096	---	53,096	---
VI:				
Atkinson County	32,830	30	32,400	400
Bacon County	20,850	400	20,050	400
Coffee County	72,600	1,560	70,100	940
VII:				
Atkinson County	15,320	---	8,200	7,120
Bacon County	3,600	---	---	3,600
Coffee County	10,480	---	---	10,480
VIII:				
Atkinson County	---	---	---	---
Bacon County	---	---	---	---
Coffee County	1,090	1,090	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
AeC Ailey	4s	Slight	Moderate	Moderate	Slash pine	70	Slash pine, longleaf pine.
					Longleaf pine	60	
AoA Albany	2w	Slight	Moderate	Moderate	Loblolly pine	95	Loblolly pine, slash pine.
					Slash pine	85	
					Longleaf pine	80	
Ba Bayboro	4w	Slight	Severe	Severe	Sweetgum	68	
					Baldcypress	65	
					Blackgum	---	
					Water tupelo	---	
BbB, BgC Blanton	3s	Slight	Moderate	Moderate	Slash pine	90	Slash pine, loblolly pine, longleaf pine.
					Loblolly pine	80	
					Longleaf pine	70	
					Bluejack oak	---	
					Turkey oak	---	
					Southern red oak	---	
					Live oak	---	
BoC Bonifay	3s	Slight	Moderate	Moderate	Slash pine	80	Slash pine.
					Longleaf pine	65	
					Loblolly pine	80	
					Post oak	---	
					Blackjack oak	---	
					Turkey oak	---	
CbB Cainhoy	3s	Slight	Moderate	Moderate	Longleaf pine	70	Longleaf pine.
					Loblolly pine	76	
CeB2 Carnegie	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, slash pine.
					Slash pine	86	
					Longleaf pine	72	
CgC2:*							
Carnegie	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, slash pine.
					Slash pine	86	
					Longleaf pine	72	
Cowarts	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, longleaf pine, slash pine.
					Slash pine	86	
					Longleaf pine	67	
Ch:*							
Chastain	2w	Slight	Severe	Severe	Sweetgum	94	Loblolly pine, American sycamore, sweetgum, cherrybark oak.
					Water oak	89	
					Eastern cottonwood	90	
					Green ash	88	
					Loblolly pine	90	
Tawcaw	1w	Slight	Moderate	Moderate	Loblolly pine	100	Loblolly pine, eastern cottonwood, American sycamore, sweetgum, water oak, cherrybark oak.
					Sweetgum	100	
					Water oak	90	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
CnA, CnB Clarendon	2w	Slight	Moderate	Slight	Loblolly pine	90	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum.
					Slash pine	90	
					Sweetgum	85	
CsD2:*							
Cowarts	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, longleaf pine, slash pine.
					Slash pine	86	
					Longleaf pine	67	
Sunsweet	3c	Slight	Moderate	Moderate	Loblolly pine	85	Loblolly pine, slash pine.
					Slash pine	85	
					Longleaf pine	70	
DoA, DoB Dothan	2o	Slight	Slight	Slight	Slash pine	89	Slash pine, loblolly pine, longleaf pine.
					Longleaf pine	70	
					Loblolly pine	---	
EoB, EoD Esto	3o	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine	65	
					Slash pine	80	
ErD:*							
Esto	3o	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine	65	
					Slash pine	80	
Rock outcrop.							
FsB Fuquay	3s	Slight	Moderate	Moderate	Loblolly pine	83	Slash pine, longleaf pine.
					Slash pine	83	
					Longleaf pine	67	
KeC Kershaw	5s	Slight	Moderate	Severe	Slash pine	65	Sand pine, slash pine, longleaf pine.
					Longleaf pine	55	
KJ:*							
Kinston	1w	Slight	Severe	Severe	Loblolly pine	100	Loblolly pine, slash pine, American sycamore, yellow-poplar, eastern cottonwood, cherrybark oak, green ash, sweetgum.
					Sweetgum	95	
					White oak	90	
					Eastern cottonwood	100	
					Cherrybark oak	95	
Johnston	1w	Slight	Severe	Severe	Loblolly pine	97	Loblolly pine, slash pine, baldcypress, yellow-poplar, sweetgum, green ash, water tupelo.
					Sweetgum	111	
					Water oak	103	
Le Leefield	3w	Slight	Moderate	Moderate	Loblolly pine	87	Loblolly pine, slash pine.
					Slash pine	84	
					Longleaf pine	75	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
OB:*							
Osier	3w	Slight	Severe	Severe	Slash pine	85	Slash pine, loblolly pine.
					Loblolly pine	87	
					Longleaf pine	69	
Bibb	2w	Slight	Severe	Severe	Loblolly pine	95	Eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
					Sweetgum	90	
					Water oak	90	
					Blackgum	---	
Ou Ousley	3w	Slight	Moderate	Moderate	Loblolly pine	80	Slash pine, loblolly pine.
					Slash pine	80	
					Longleaf pine	70	
Pd Pelham	4w	Slight	Severe	Severe	Sweetgum	---	Slash pine, loblolly pine.
					Blackgum	65	
					Water oak	---	
					Pond pine	---	
					Baldcypress	68	
					Swamp tupelo	---	
Pe Pelham	2w	Slight	Severe	Severe	Slash pine	90	Slash pine, loblolly pine.
					Loblolly pine	90	
					Longleaf pine	80	
					Sweetgum	80	
					Blackgum	80	
					Water oak	80	
Rg Rigdon	2w	Slight	Moderate	Moderate	Loblolly pine	90	Loblolly pine, slash pine.
					Slash pine	84	
					Longleaf pine	70	
Sa Sapelo	3w	Slight	Moderate	Moderate	Loblolly pine	77	Loblolly pine, slash pine.
					Slash pine	77	
					Longleaf pine	65	
StA Stilson	2w	Slight	Moderate	Slight	Loblolly pine	95	Slash pine, loblolly pine, longleaf pine.
					Slash pine	95	
					Longleaf pine	80	
					Sweetgum	---	
Su Surrency	4w	Slight	Severe	Severe	Sweetgum	---	
					Blackgum	65	
					Water oak	---	
					Baldcypress	68	
					Water tupelo	---	
TfA, TfB Tifton	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, slash pine.
					Slash pine	86	
					Longleaf pine	72	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
TyD:*							
Troup	3s	Slight	Slight	Moderate	Loblolly pine Longleaf pine Slash pine	77 76 85	Loblolly pine, longleaf pine, slash pine.
Ailey	4s	Slight	Moderate	Moderate	Slash pine Longleaf pine	70 60	Slash pine, longleaf pine.
Wa Wahee	2w	Slight	Moderate	Moderate	Loblolly pine Slash pine Sweetgum Blackgum Water oak Swamp chestnut oak Willow oak Southern red oak	91 86 90 --- --- --- --- ---	Loblolly pine, slash pine, sweetgum, American sycamore, water oak.
WcB, WcC Wicksburg	3s	Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	80 80 70	Loblolly pine, longleaf pine, slash pine.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AeC------------------ Ailey	Moderate: percs slowly, too sandy.	Moderate: percs slowly, too sandy.	Moderate: slope, percs slowly, too sandy.	Moderate: too sandy.	Moderate: droughty, too sandy.
AoA------------------ Albany	Severe: wetness, too sandy.	Severe: too sandy.	Severe: too sandy, wetness.	Severe: too sandy.	Severe: droughty.
Ba------------------- Bayboro	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
BbB, BgC------------- Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
BoC------------------ Bonifay	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
CbB------------------ Cainhoy	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
CeB2----------------- Carnegie	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly, small stones.	Slight----------	Slight.
CgC2:*					
Carnegie------------	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
Cowarts-------------	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
Ch:*					
Chastain------------	Severe: flooding, wetness, too clayey.	Severe: wetness, too clayey.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.
Tawcaw--------------	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
CnA------------------ Clarendon	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
CnB------------------ Clarendon	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CsD2:* Cowarts	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
Sunsweet	Moderate: slope, small stones, percs slowly.	Moderate: slope, small stones, perc slowly.	Severe: slope, small stones.	Slight	Moderate: droughty, slope, small stones.
Da Dasher	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
DoA Dothan	Slight	Slight	Slight	Slight	Slight.
DoB Dothan	Slight	Slight	Moderate: slope.	Slight	Slight.
EoB Esto	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
EoD Esto	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
ErD:* Esto	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
Rock outcrop.					
FsB Fuquay	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
KeC Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty, too sandy.
KJ:* Kinston	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Johnston	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: ponding, flooding.
Le Leefield	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Lu:*					
Leefield	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Urban land.					
OB:*					
Osier	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, droughty, flooding.
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Ou Ousley	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Slight	Severe: droughty.
Pd Pelham	Severe: too sandy, ponding.	Severe: too sandy, ponding.	Severe: too sandy, ponding.	Severe: too sandy, ponding.	Severe: ponding.
Pe Pelham	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Rg Rigdon	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, too sandy, droughty.
Sa Sapelo	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: droughty, wetness.
StA Stilson	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: droughty.
Su Surrency	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
TfA Tifton	Slight	Slight	Moderate: small stones.	Slight	Slight.
TfB Tifton	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
TuB:*					
Tifton	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
Urban land.					

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TyD:*					
Troup	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, slope.
Ailey	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: too sandy.
Wa Wahee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
WcB Wicksburg	Moderate: percs slowly, too sandy.	Moderate: percs slowly, too sandy.	Moderate: slope, percs slowly, too sandy.	Moderate: too sandy.	Moderate: droughty.
WcC Wicksburg	Moderate: percs slowly, too sandy.	Moderate: percs slowly, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AeC---------------- Ailey	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
AoA---------------- Albany	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
Ba----------------- Bayboro	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
BbB, BgC----------- Blanton	Poor	Poor	Fair	Poor	Poor	Poor	Very poor.	Poor	Poor	Very poor.
BoC---------------- Bonifay	Poor	Poor	Fair	Poor	Poor	Poor	Very poor.	Poor	Poor	Very poor.
CbB---------------- Cainhoy	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CeB2--------------- Carnegie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CgC2:* Carnegie-----------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Cowarts------------	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Ch:* Chastain-----------	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
Tawcaw-------------	Very poor.	Poor	Poor	Good	Fair	Fair	Fair	Poor	Fair	Fair.
CnA, CnB----------- Clarendon	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
CsD2:* Cowarts------------	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Sunsweet-----------	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
Da----------------- Dasher	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
DoA, DoB----------- Dothan	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EoB---------------- Esto	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EoD---------------- Esto	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
ErD:* Esto	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Rock outcrop.										
FsB Fuquay	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
KeC Kershaw	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
KJ:* Kinston	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Johnston	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Le Leefield	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Lu:* Leefield	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Urban land.										
OB:* Osier	Very poor.	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Ou Ousley	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Pd Pelham	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Pe Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
Rg Rigdon	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Poor.
Sa Sapelo	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
StA Stilson	Fair	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Poor.
Su Surrency	Very poor.	Poor	Poor	Poor	Poor	Fair	Fair	Poor	Poor	Fair.
TfA Tifton	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
TfB Tifton	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
TuB:*										
Tifton	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
TyD:*										
Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Ailey	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Wa Wahee	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
WcB, WcC Wicksburg	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AeC Ailey	Moderate: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty, too sandy.
AoA Albany	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Severe: droughty.
Ba Bayboro	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding.	Severe: ponding.
BbB, BgC Blanton	Severe: cutbanks cave.	Slight	Moderate: wetness.	Moderate: slope.	Slight	Severe: droughty.
BoC Bonifay	Severe: cutbanks cave.	Slight	Moderate: wetness.	Moderate: slope.	Slight	Severe: droughty.
CbB Cainhoy	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
CeB2 Carnegie	Moderate: too clayey, dense layer.	Slight	Slight	Slight	Moderate: low strength.	Slight.
CgC2:* Carnegie	Moderate: too clayey, dense layer.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
Cowarts	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
Ch:* Chastain	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding, too clayey.
Tawcaw	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
CnA, CnB Clarendon	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
CsD2:* Cowarts	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Sunsweet	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, small stones.
Da Dasher	Severe: excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding, low strength.	Severe: ponding, low strength.	Severe: ponding, low strength.	Severe: ponding, excess humus.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
DoA, DoB Dothan	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.
EoB Esto	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: low strength, shrink-swell.	Slight.
EoD Esto	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope, shrink-swell.	Moderate: slope.
ErD:*						
Esto	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope, shrink-swell.	Moderate: slope.
Rock outcrop.						
FsB Fuquay	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
KeC Kershaw	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty, too sandy.
KJ:*						
Kinston	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, low strength.	Severe: wetness, flooding.
Johnston	Severe: cutbanks cave, excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding.	Severe: ponding, flooding.
Le Leefield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Lu:*						
Leefield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Urban land.						
OB:*						
Osier	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, droughty, flooding.
Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Ou Ousley	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: droughty.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Pd----------------- Pelham	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Pe----------------- Pelham	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
Rg----------------- Rigdon	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, too sandy, droughty.
Sa----------------- Sapelo	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: droughty, wetness.
StA---------------- Stilson	Severe: cutbanks cave.	Slight----------	Moderate: wetness.	Slight----------	Slight----------	Moderate: droughty.
Su----------------- Surrency	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
TfA, TfB----------- Tifton	Moderate: wetness.	Slight----------	Moderate: wetness.	Slight----------	Slight----------	Slight.
TuB:*						
Tifton------------	Moderate: wetness.	Slight----------	Moderate: wetness.	Slight----------	Slight----------	Slight.
Urban land.						
TyD:*						
Troup-------------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Ailey-------------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: too sandy.
Wa----------------- Wahee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
WcB---------------- Wicksburg	Moderate: too clayey.	Slight----------	Moderate: shrink-swell.	Slight----------	Slight----------	Moderate: droughty.
WcC---------------- Wicksburg	Moderate: too clayey.	Slight----------	Moderate: shrink-swell.	Moderate: slope.	Slight----------	Moderate: droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AeC----------------- Ailey	Severe: percs slowly.	Severe: seepage.	Slight-----------	Severe: seepage.	Good.
AoA----------------- Albany	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
Ba------------------ Bayboro	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
BbB----------------- Blanton	Moderate: wetness.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
BgC----------------- Blanton	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
BoC----------------- Bonifay	Moderate: wetness, percs slowly.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
CbB----------------- Cainhoy	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
CeB2---------------- Carnegie	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
CgC2:*					
Carnegie-----------	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
Cowarts------------	Severe: percs slowly.	Moderate: slope.	Slight-----------	Slight-----------	Good.
Ch:*					
Chastain-----------	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness, too clayey, hard to pack.
Tawcaw-------------	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
CnA, CnB------------ Clarendon	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CsD2:*					
Cowarts	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Sunsweet	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
Da Dasher	Severe: ponding.	Severe: excess humus, ponding.	Severe: ponding, seepage.	Severe: seepage, ponding.	Poor: ponding, seepage, excess humus.
DoA Dothan	Moderate: wetness, percs slowly.	Moderate: seepage.	Slight	Slight	Good.
DoB Dothan	Moderate: wetness, percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
EoB Esto	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
EoD Esto	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
ErD:*					
Esto	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
Rock outcrop.					
FsB Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight	Slight	Fair: too sandy.
KeC Kershaw	Severe: poor filter.	Severe: seepage.	Severe: too sandy, seepage.	Severe: seepage.	Poor: seepage, too sandy.
KJ:*					
Kinston	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Johnston	Severe: flooding, ponding, poor filter.	Severe: seepage, flooding, ponding.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Poor: seepage, ponding.
Le Leefield	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Lu:*					
Leefield	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
Urban land.					
OB:*					
Osier	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Ou Ousley	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy.
Pd Pelham	Severe: ponding.	Severe: seepage, ponding.	Severe: ponding.	Severe: seepage, ponding.	Poor: ponding.
Pe Pelham	Severe: flooding, wetness.	Severe: seepage, wetness, flooding.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.
Rg Rigdon	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.	Poor: seepage, too sandy.
Sa Sapelo	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
StA Stilson	Severe: wetness.	Severe: seepage, wetness.	Moderate: wetness.	Severe: seepage.	Fair: wetness.
Su Surrency	Severe: ponding.	Severe: seepage, ponding.	Severe: ponding.	Severe: seepage, ponding.	Poor: ponding.
TfA Tifton	Moderate: percs slowly, wetness.	Moderate: seepage.	Slight	Slight	Fair: small stones.
TfB Tifton	Moderate: percs slowly, wetness.	Moderate: slope, seepage.	Slight	Slight	Fair: small stones.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
TuB:*					
Tifton	Moderate: percs slowly, wetness.	Moderate: slope, seepage.	Slight	Slight	Fair: small stones.
Urban land.					
TyD:*					
Troup	Moderate: slope.	Severe: seepage, slope.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Ailey	Severe: percs slowly.	Severe: seepage, slope.	Moderate: slope.	Severe: seepage.	Fair: slope.
Wa Wahee	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
WcB, WcC Wicksburg	Severe: percs slowly.	Severe: seepage.	Moderate: too clayey.	Severe: seepage.	Fair: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable". Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AeC Ailey	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
AoA Albany	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Ba Bayboro	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
BbB, BgC Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
BoC Bonifay	Good	Probable	Improbable: too sandy.	Poor: too sandy.
CbB Cainhoy	Good	Probable	Improbable: too sandy.	Poor: too sandy.
CeB2 Carnegie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CgC2:*				
Carnegie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Cowarts	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Ch:*				
Chastain	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Tawcaw	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CnA, CnB Clarendon	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
CsD2:*				
Cowarts	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Sunsweet	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Da Dasher	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
DoA, DoB Dothan	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
EoB, EoD Esto	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ErD:*				
Esto	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Rock outcrop.				
FsB Fuquay	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
KeC Kershaw	Good	Probable	Improbable: too sandy.	Poor: too sandy.
KJ:*				
Kinston	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Johnston	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Le Leefield	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Lu:*				
Leefield	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Urban land.				
OB:*				
Osier	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ou Ousley	Fair: wetness.	Probable	Improbable: too sandy.	Fair: too sandy.
Pd Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
Pe Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Rg Rigdon	Fair: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: too sandy.
Sa Sapelo	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: too sandy, wetness.
StA Stilson	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Su Surrency	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
TfA, TfB------------ Tifton	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
TuB:*				
Tifton---------------	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Urban land.				
TyD:*				
Troup----------------	Good----------------	Probable------------	Improbable: too sandy.	Poor: too sandy.
Ailey----------------	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Wa------------------ Wahee	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
WcB, WcC------------ Wicksburg	Moderate: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AeC Ailey	Slight	Slight	Deep to water	Droughty, percs slowly, slope.	Too sandy, percs slowly.	Droughty, rooting depth.
AoA Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
Ba Bayboro	Slight	Severe: ponding.	Ponding, percs slowly.	Ponding, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
BbB, BgC Blanton	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
BoC Bonifay	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
CbB Cainhoy	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
CeB2 Carnegie	Slight	Slight	Deep to water	Slope	Favorable	Favorable.
CgC2:*						
Carnegie	Slight	Slight	Deep to water	Slope	Favorable	Favorable.
Cowarts	Slight	Slight	Deep to water	Fast intake, percs slowly, slope.	Percs slowly	Percs slowly.
Ch:*						
Chastain	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Tawcaw	Slight	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
CnA Clarendon	Moderate: seepage.	Moderate: wetness.	Favorable	Wetness, fast intake.	Wetness	Favorable.
CnB Clarendon	Moderate: seepage.	Moderate: wetness.	Slope	Wetness, fast intake, slope.	Wetness	Favorable.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
CsD2:*						
Cowarts	Slight	Slight	Deep to water	Fast intake, percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Sunsweet	Slight	Slight	Deep to water	Droughty, slope.	Slope, erodes easily.	Slope, erodes easily, droughty.
Da Dasher	Severe: seepage.	Severe: seepage, excess humus, ponding.	Ponding, subsides.	Ponding	Ponding	Wetness.
DoA Dothan	Moderate: seepage.	Slight	Deep to water	Fast intake	Favorable	Favorable.
DoB Dothan	Moderate: seepage.	Slight	Deep to water	Fast intake, slope.	Favorable	Favorable.
EoB Esto	Slight	Severe: hard to pack.	Deep to water	Fast intake, percs slowly, slope.	Percs slowly	Percs slowly.
EoD Esto	Slight	Severe: hard to pack.	Deep to water	Fast intake, percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
ErD:*						
Esto	Slight	Severe: hard to pack.	Deep to water	Fast intake, percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Rock outcrop.						
FsB Fuquay	Slight	Slight	Deep to water	Droughty, fast intake, slope.	Too sandy	Droughty.
KeC Kershaw	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy, soil blowing.	Droughty.
KJ:*						
Kinston	Moderate: seepage.	Severe: wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
Johnston	Severe: seepage.	Severe: seepage, piping, ponding.	Ponding, flooding, cutbanks cave.	Ponding, flooding.	Ponding	Wetness.
Le Leefield	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness, droughty, fast intake.	Wetness	Droughty.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Lu:*						
Leefield	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness, droughty, fast intake.	Wetness	Droughty.
Urban land.						
OB:*						
Osier	Severe: seepage.	Severe: seepage, piping, wetness.	Flooding, cutbanks cave.	Wetness, flooding, droughty.	Wetness, too sandy.	Wetness, droughty.
Bibb	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
Ou Ousley	Severe: seepage.	Severe: seepage, piping.	Flooding, cutbanks cave.	Wetness, droughty.	Wetness, too sandy.	Droughty.
Pd Pelham	Severe: seepage.	Severe: piping, ponding.	Ponding	Ponding, fast intake.	Ponding	Wetness.
Pe Pelham	Severe: seepage.	Severe: piping, wetness.	Flooding	Flooding, fast intake.	Wetness	Wetness.
Rg Rigdon	Moderate: seepage.	Severe: seepage, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Droughty.
Sa Sapelo	Severe: seepage.	Severe: seepage, piping, wetness.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.	Droughty, wetness.
StA Stilson	Moderate: seepage.	Severe: piping.	Favorable	Wetness, droughty.	Wetness	Droughty.
Su Surrency	Severe: seepage.	Severe: seepage, piping, ponding.	Ponding, cutbanks cave.	Ponding, droughty.	Ponding, too sandy.	Wetness, droughty.
TfA Tifton	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
TfB Tifton	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
TuB:*						
Tifton	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
Urban land.						

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
TyD:*						
Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy.	Slope, droughty.
Ailey	Slight	Slight	Deep to water	Droughty, percs slowly, slope.	Slope, too sandy, percs slowly.	Slope, droughty, rooting depth.
Wa Wahee	Slight	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
WcB, WcC Wicksburg	Slight	Moderate: piping, hard to pack.	Deep to water	Droughty, fast intake, percs slowly, slope.	Percs slowly, too sandy.	Droughty, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated. Some soils may have Unified classifications and USDA textures in addition to those shown. In general, the dominant classifications and textures are shown]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AeC-------------- Ailey	0-28	Loamy coarse sand	SM, SP-SM	A-2, A-3	0	85-100	75-100	50-80	5-20	---	NP
	28-36	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	90-100	75-100	60-90	30-40	20-40	3-16
	36-70	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	90-100	75-100	55-90	20-40	20-40	3-15
AoA-------------- Albany	0-48	Sand-------------	SM	A-2	0	100	100	75-90	10-20	---	NP
	48-55	Sandy loam-------	SM	A-2	0	100	100	75-92	22-30	---	NP
	55-70	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	20-50	<40	NP-17
Ba--------------- Bayboro	0-14	Loam-------------	CL, ML, CL-ML	A-6, A-7, A-4	0	100	100	85-100	60-80	25-42	4-20
	14-70	Clay loam, sandy clay, clay.	CL, CH	A-7	0	100	100	85-100	55-95	41-70	20-40
BbB-------------- Blanton	0-65	Sand-------------	SP-SM	A-3, A-2-4	0	100	90-100	65-100	5-12	---	NP
	65-77	Sandy loam, loamy sand, loamy coarse sand.	SM	A-2-4	0	100	95-100	65-96	13-30	<25	NP-3
	77-90	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-96	25-50	16-45	3-22
BgC-------------- Blanton	0-48	Gravelly sand----	SP-SM	A-1, A-2-4, A-3	0	90-100	50-80	40-60	5-10	---	NP
	48-70	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-96	25-50	16-45	3-22
BoC-------------- Bonifay	0-50	Sand-------------	SP-SM	A-3, A-2-4	0	98-100	98-100	60-95	5-12	---	NP
	50-56	Sandy loam, sandy clay loam, fine sandy loam.	SM-SC, SC, SM	A-2-4, A-4, A-2-6, A-6	0	95-100	90-100	63-95	23-50	<30	NP-12
	56-80	Sandy clay loam, sandy clay.	SM-SC, SC	A-2, A-4, A-6, A-7	0	95-100	90-100	60-95	30-50	25-45	5-22
CbB-------------- Cainhoy	0-72	Sand-------------	SP-SM, SM	A-3, A-2	0	100	100	80-100	5-18	---	NP
	72-88	Fine sand, sand	SP-SM, SP	A-3	0	100	100	80-100	3-10	---	NP
CeB2------------- Carnegie	0-7	Sandy loam-------	SM, SM-SC	A-2	0	85-100	75-95	51-75	13-30	<25	NP-5
	7-19	Sandy clay, sandy clay loam.	CL	A-6, A-7	0	95-100	90-99	90-95	65-70	36-49	13-25
	19-35	Sandy clay, clay	CL	A-6, A-7	0	92-100	90-98	89-98	63-76	36-49	13-25
	35-70	Sandy clay, clay	CL	A-7, A-6	0	99-100	98-100	90-98	68-79	36-49	13-25

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
CgC2:*											
Carnegie--------	0-7	Sandy loam-------	SM, SM-SC	A-2	0	85-100	75-95	51-75	13-30	<25	NP-5
	7-19	Sandy clay, sandy clay loam.	CL	A-6, A-7	0	95-100	90-99	90-95	65-70	36-49	13-25
	19-35	Sandy clay, clay	CL	A-6, A-7	0	92-100	90-98	89-98	63-76	36-49	13-25
	35-70	Sandy clay, clay	CL	A-7, A-6	0	99-100	98-100	90-98	68-79	36-49	13-25
Cowart----------	0-7	Loamy sand-------	SM	A-2	0	90-100	85-100	50-80	13-30	---	NP
	7-14	Fine sandy loam, sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	90-100	60-90	23-45	20-40	NP-15
	14-33	Sandy clay loam, sandy clay.	SM-SC, SM, SC	A-6, A-7	0	95-100	90-100	60-90	25-50	30-54	11-23
	33-65	Sandy loam, sandy clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	85-100	80-100	60-95	30-58	25-53	5-20
Ch:*											
Chastain--------	0-5	Silty clay-------	ML, CL, MH CH	A-6, A-7	0	100	100	90-100	75-98	35-75	12-40
	5-64	Silty clay loam, silty clay, clay.	CL, CH, ML MH	A-6, A-7	0	100	100	95-100	85-98	35-75	12-40
Tawcaw----------	0-5	Clay loam--------	CL, CH	A-6, A-7, A-4	0	100	100	85-100	75-95	28-55	8-26
	5-60	Silty clay loam, silty clay, clay.	CL, CH	A-6, A-7	0	100	100	90-100	51-98	30-65	11-33
CnA, CnB--------- Clarendon	0-9	Loamy sand-------	SM, SP-SM	A-2	0	98-100	92-100	65-90	10-30	<20	NP-3
	9-26	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-4, A-6	0	98-100	92-100	75-95	36-55	20-40	5-15
	26-60	Sandy clay loam, sandy loam, sandy clay.	SC, CL, SM-SC, CL-ML	A-2, A-4, A-6	0	99-100	96-100	80-95	25-55	<40	NP-15
CsD2:*											
Cowarts---------	0-7	Loamy sand-------	SM	A-2	0	90-100	85-100	50-80	13-30	---	NP
	7-14	Fine sandy loam, sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	90-100	60-90	23-45	20-40	NP-15
	14-33	Sandy clay loam, sandy clay.	SM-SC, SM, SC	A-6, A-7	0	95-100	90-100	60-90	25-50	30-54	11-23
	33-65	Sandy loam, sandy clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	85-100	80-100	60-95	30-58	25-53	5-20
Sunsweet--------	0-5	Gravelly sandy loam.	SM	A-2	0	80-100	55-92	45-90	17-30	---	NP
	5-12	Clay, sandy clay, sandy clay loam.	CL, SC	A-6, A-7, A-4	0	95-100	90-100	80-97	40-70	30-41	8-16
	12-65	Clay, sandy clay	CL, ML	A-6, A-7	0	95-100	92-100	90-99	55-80	36-47	13-24
Da-------------- Dasher	0-8	Muck-------------	PT	---	0	---	---	---	---	---	NP
	8-70	Mucky-peat-------	PT	---	0	---	---	---	---	---	NP

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
DoA, DoB--------- Dothan	0-8	Loamy sand-------	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	8-38	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-49	<40	NP-16
	38-60	Sandy clay loam, sandy clay.	SM-SC, SC, SM, CL	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-53	25-45	4-23
EoB, EoD--------- Esto	0-8	Loamy sand-------	SM, SP-SM	A-2	0	90-100	85-100	50-85	10-35	---	NP
	8-24	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	85-100	85-100	45-90	35-50	12-25
	24-70	Clay loam, clay, sandy clay.	CL, CH	A-7	0	95-100	85-100	85-100	51-98	40-80	18-52
ErD:*											
Esto-------------	0-8	Loamy sand-------	SM, SP-SM	A-2	0	90-100	85-100	50-85	10-35	---	NP
	8-24	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	85-100	85-100	45-90	35-50	12-25
	24-70	Clay loam, clay, sandy clay.	CL, CH	A-7	0	95-100	85-100	85-100	51-98	40-80	18-52
Rock outcrop.											
FsB-------------- Fuquay	0-32	Loamy sand-------	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-35	---	NP
	32-38	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	85-100	85-100	70-90	23-45	<25	NP-13
	38-80	Sandy clay loam	SC, SM-SC, CL-ML	A-2, A-4, A-6, A-7-6	0	95-100	90-100	58-90	28-49	20-49	4-12
KeC-------------- Kershaw	0-90	Coarse sand------	SP, SP-SM, SW	A-2, A-3	0	98-100	98-100	50-80	1-7	---	NP
KJ:*											
Kinston---------	0-13	Sandy loam-------	SM, SC, SM-SC	A-2, A-4	0	100	98-100	55-100	25-49	<35	NP-10
	13-52	Loam, clay loam, sandy clay loam.	CL	A-4, A-6, A-7	0	100	95-100	75-100	60-95	20-45	8-22
	52-65	Variable---------	---	---	0	---	---	---	---	---	---
Johnston--------	0-36	Mucky loam-------	OL, ML, CL-ML	A-8, A-4, A-5	0	100	100	90-100	51-75	20-45	2-14
	36-50	Stratified loamy sand to sand.	SM, SP-SM	A-2, A-3	0	100	100	50-100	5-30	---	NP
	50-65	Stratified fine sandy loam to sandy loam.	SM	A-2, A-4	0	100	100	50-100	25-49	<35	NP-10
Le--------------- Leefield	0-26	Loamy sand-------	SM, SW-SM, SP-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	26-32	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	93-100	65-95	20-40	<40	NP-16
	32-62	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-90	20-40	<40	NP-20

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Lu:*											
Leefield--------	0-26	Loamy sand-------	SM, SW-SM, SP-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	26-32	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	93-100	65-95	20-40	<40	NP-16
	32-62	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-90	20-40	<40	NP-20
Urban land.											
OB:*											
Osier-----------	0-10	Loamy fine sand	SM	A-2	0	100	98-100	70-90	13-25	---	NP
	10-35	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	65-96	5-20	---	NP
	35-80	Coarse sand, sand fine sand.	SP, SP-SM	A-1, A-3, A-2-4	0	100	90-100	40-60	2-10	---	NP
Bibb------------	0-8	Loam-------------	ML, CL-ML	A-4	0-5	95-100	90-100	80-90	50-80	<25	NP-7
	8-60	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
Ou--------------- Ousley	0-30	Loamy fine sand	SP-SM, SM	A-2, A-3	0	100	100	70-100	5-25	---	NP
	30-80	Sand, fine sand, coarse sand.	SP-SM, SM, SP	A-1, A-2, A-3	0	100	95-100	36-99	2-15	---	NP
Pd--------------- Pelham	0-33	Sand------------	SM, SP-SM	A-2	0	100	95-100	75-90	10-25	---	NP
	33-60	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	27-50	16-30	2-12
Pe--------------- Pelham	0-33	Loamy sand-------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	33-60	Sandy clay loam, sandy loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	27-50	16-30	2-12
Rg--------------- Rigdon	0-7	Sand------------	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	7-15	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	15-38	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	38-80	Sandy loam, sandy clay loam.	SC, SM-SC	A-2, A-4, A-6	0	100	100	85-100	30-45	20-38	4-15
Sa--------------- Sapelo	0-11	Fine sand--------	SM, SP, SP-SM	A-2, A-3	0	100	100	85-100	4-20	---	NP
	11-20	Fine sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	80-100	8-20	---	NP
	20-50	Fine sand, sand	SM, SP, SP-SM	A-2, A-3	0	100	100	75-100	4-20	---	NP
	50-70	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	80-100	20-50	<40	NP-20
StA-------------- Stilson	0-24	Loamy sand-------	SM	A-2	0	94-100	94-100	74-92	15-24	---	NP
	24-45	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-6, A-4	0	89-100	86-100	77-94	25-41	<29	NP-13
	45-70	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-6, A-4	0	96-100	95-100	70-99	25-50	<40	NP-20

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Su--------------- Surrency	0-36	Loamy sand-------	SM	A-2	0	100	95-100	50-75	15-26	---	NP
	36-44	Sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2	0	100	95-100	75-93	22-33	<30	NP-10
	44-62	Sandy clay loam	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	80-98	30-44	<35	NP-15
TfA, TfB--------- Tifton	0-9	Loamy sand-------	SM, SP-SM	A-2	0	70-97	62-94	53-85	11-27	---	NP
	9-11	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	11-48	Sandy clay loam	SC, CL	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	10-22
	48-65	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
TuB:* Tifton----------	0-9	Loamy sand-------	SM, SP-SM	A-2	0	70-97	62-94	53-85	11-27	---	NP
	9-11	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	11-48	Sandy clay loam	SC, CL	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	10-22
	48-65	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
Urban land.											
TyD:* Troup-----------	0-60	Sand-------------	SM, SP-SM	A-2	0	95-100	90-100	50-75	10-30	---	NP
	60-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2, A-6	0	95-100	90-100	60-90	24-55	19-40	4-20
Ailey-----------	0-26	Coarse sand------	SP-SM	A-2, A-3	0	85-100	75-95	50-75	5-12	---	NP
	26-36	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	90-100	75-100	60-90	30-40	20-40	3-16
	36-70	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	90-100	75-100	55-90	20-40	20-40	3-15
Wa--------------- Wahee	0-10	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	50-98	30-50	<28	NP-7
	10-55	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	0	100	100	85-100	51-90	38-70	18-42
	55-80	Variable---------	---	---	---	---	---	---	---	---	---
WcB, WcC--------- Wicksburg	0-24	Loamy sand-------	SM	A-2	0	100	90-100	50-80	15-35	---	NP
	24-32	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-4, A-6	0	100	98-100	80-100	36-80	<35	NP-15
	32-72	Clay loam, sandy clay, clay.	CL	A-6, A-7	0	100	98-100	85-100	50-95	35-45	12-20

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH				Pct
AeC--------------	0-28	5-10	1.35-1.45	6.0-20	0.03-0.05	4.5-6.5	Low----------	0.15	4	<1
Ailey	28-36	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24		
	36-70	18-32	1.70-1.80	0.06-0.2	0.06-0.10	4.5-5.5	Low----------	0.17		
AoA--------------	0-48	1-10	1.40-1.55	6.0-20	0.02-0.04	3.6-6.5	Low----------	0.10	5	1-2
Albany	48-55	1-20	1.50-1.70	2.0-6.0	0.08-0.10	4.5-6.0	Low----------	0.20		
	55-70	15-35	1.55-1.65	0.6-2.0	0.10-0.16	4.5-6.0	Low----------	0.24		
Ba---------------	0-14	10-35	1.30-1.50	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.17	---	4-15
Bayboro	14-70	35-65	1.20-1.40	0.06-0.2	0.14-0.18	4.5-5.5	Moderate-----	0.32		
BbB--------------	0-65	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	Low----------	0.10	5	.5-1
Blanton	65-77	10-18	1.53-1.65	2.0-6.0	0.10-0.15	4.5-5.5	Low----------	0.15		
	77-90	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
BgC--------------	0-48	1-7	1.50-1.70	6.0-20	0.02-0.04	4.5-6.0	Low----------	0.05	5	.5-1
Blanton	48-70	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
BoC--------------	0-50	3-9	1.35-1.60	6.0-20	0.03-0.08	4.5-6.5	Low----------	0.10	5	1-3
Bonifay	50-56	15-35	1.60-1.70	0.6-2.0	0.10-0.15	4.5-6.5	Low----------	0.24		
	56-80	20-45	1.60-1.70	0.2-0.6	0.10-0.15	4.5-6.5	Low----------	0.24		
CbB--------------	0-72	2-15	1.40-1.70	6.0-20	0.05-0.08	4.5-6.5	Low----------	0.10	5	<1
Cainhoy	72-88	1-10	1.40-1.70	6.0-20	0.05-0.08	4.5-6.5	Low----------	0.10		
CeB2-------------	0-7	3-8	1.45-1.90	2.0-6.0	0.05-0.08	4.5-6.0	Low----------	0.28	3	1-2
Carnegie	7-19	36-43	1.30-1.75	0.2-0.6	0.10-0.14	4.5-5.5	Low----------	0.32		
	19-35	36-51	1.40-1.90	0.2-0.6	0.10-0.12	4.5-5.5	Low----------	0.28		
	35-70	36-55	1.40-1.90	0.2-0.6	0.10-0.12	4.5-5.5	Low----------	0.28		
CgC2:*										
Carnegie--------	0-7	3-8	1.45-1.90	2.0-6.0	0.05-0.08	4.5-6.0	Low----------	0.28	3	1-2
	7-19	36-43	1.30-1.75	0.2-0.6	0.10-0.14	4.5-5.5	Low----------	0.32		
	19-35	36-51	1.40-1.90	0.2-0.6	0.10-0.12	4.5-5.5	Low----------	0.28		
	35-70	36-55	1.40-1.90	0.2-0.6	0.10-0.12	4.5-5.5	Low----------	0.28		
Cowarts---------	0-7	3-10	1.30-1.70	2.0-6.0	0.06-0.10	4.5-5.5	Low----------	0.15	3	<1
	7-14	10-30	1.30-1.50	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.28		
	14-33	25-40	1.30-1.50	0.2-2.0	0.10-0.16	4.5-5.5	Low----------	0.28		
	33-65	18-35	1.45-1.75	0.06-0.6	0.08-0.12	4.5-5.5	Low----------	0.24		
Ch:*										
Chastain--------	0-5	27-50	1.20-1.40	0.06-0.2	0.12-0.16	4.5-6.0	Moderate-----	0.28	5	2-6
	5-64	35-60	1.30-1.50	0.06-0.2	0.12-0.16	4.5-6.0	Moderate-----	0.37		
Tawcaw----------	0-5	30-40	1.20-1.40	0.06-0.6	0.12-0.18	4.5-6.5	Moderate-----	0.28	5	2-5
	5-60	35-70	1.30-1.60	0.06-0.2	0.12-0.16	4.5-6.5	Moderate-----	0.37		
CnA, CnB---------	0-9	2-10	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	0.15	5	.5-3
Clarendon	9-26	18-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
	26-60	15-40	1.40-1.70	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.15		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm	In/hr	In/in	pH				Pct
CsD2:*										
Cowarts---------	0-7	3-10	1.30-1.70	2.0-6.0	0.06-0.10	4.5-5.5	Low----------	0.15	3	<1
	7-14	10-30	1.30-1.50	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.28		
	14-33	25-40	1.30-1.50	0.2-2.0	0.10-0.16	4.5-5.5	Low----------	0.28		
	33-65	18-35	1.45-1.75	0.06-0.6	0.08-0.12	4.5-5.5	Low----------	0.24		
Sunsweet--------	0-5	5-15	---	2.0-6.0	0.09-0.12	4.5-5.5	Low----------	0.24	2	.5-1
	5-12	40-60	---	0.2-0.6	0.07-0.10	4.5-5.5	Low----------	0.28		
	12-65	---	---	---	---	---	-------------	----		
Da--------------- Dasher	0-8	---	---	---	---	---	-------------	----	---	---
	8-70	---	---	---	---	---	-------------	----		
DoA, DoB--------- Dothan	0-8	5-15	---	2.0-6.0	0.06-0.10	4.5-5.5	Very low-----	0.15	5	<.5
	8-38	18-35	---	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.28		
	38-60	18-40	---	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.28		
EoB, EoD--------- Esto	0-8	7-12	1.45-1.65	6.0-20	0.06-0.10	4.5-5.5	Low----------	0.17	3	<1
	8-24	26-45	1.55-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Moderate-----	0.32		
	24-70	35-60	1.50-1.65	0.06-0.2	0.12-0.18	4.5-5.5	Moderate-----	0.32		
ErD:*										
Esto------------	0-8	7-12	1.45-1.65	6.0-20	0.06-0.10	4.5-5.5	Low----------	0.17	3	<1
	8-24	26-45	1.55-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Moderate-----	0.32		
	24-70	35-60	1.50-1.65	0.06-0.2	0.12-0.18	4.5-5.5	Moderate-----	0.32		
Rock outcrop.										
FsB-------------- Fuquay	0-32	2-10	1.60-1.70	>6.0	0.04-0.09	4.5-6.0	Low----------	0.15	5	.5-2
	32-38	10-35	1.40-1.60	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.20		
	38-80	20-35	1.40-1.60	0.06-0.2	0.10-0.13	4.5-6.0	Low----------	0.20		
KeC-------------- Kershaw	0-90	<5	1.35-1.60	>20	0.02-0.05	4.5-6.0	Very low-----	0.10	5	<1
KJ:*										
Kinston---------	0-13	5-18	1.40-1.60	2.0-6.0	0.13-0.19	4.5-6.0	Low----------	0.24	5	2-5
	13-52	18-35	1.30-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.32		
	52-65	---	---	---	---	---	-------------	----		
Johnston--------	0-36	7-18	1.25-1.45	2.0-6.0	0.20-0.26	4.5-5.5	Low----------	0.17	5	8-18
	36-50	2-12	1.55-1.65	6.0-20	0.02-0.07	4.5-5.5	Low----------	0.17		
	50-65	5-20	1.45-1.65	6.0-20	0.06-0.12	4.5-5.5	Low----------	0.17		
Le--------------- Leefield	0-26	5-10	---	6.0-20	0.04-0.07	4.5-6.0	Low----------	0.10	5	1-2
	26-32	15-25	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.15		
	32-62	15-30	---	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.10		
Lu:*										
Leefield--------	0-26	5-10	---	6.0-20	0.04-0.07	4.5-6.0	Low----------	0.10	5	1-2
	26-32	15-25	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.15		
	32-62	15-30	---	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.10		
Urban land.										
OB:*										
Osier-----------	0-10	10-15	1.35-1.60	6.0-20	0.10-0.15	3.6-6.0	Low----------	0.15	5	---
	10-35	1-10	1.40-1.60	6.0-20	0.03-0.10	3.6-6.0	Low----------	0.10		
	35-80	2-5	1.40-1.60	>20	0.02-0.05	3.6-6.0	Low----------	0.05		
Bibb------------	0-8	2-18	1.20-1.55	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.28	5	.5-2
	8-60	2-18	1.30-1.60	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.37		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm	In/hr	In/in	pH				Pct
Ou---------------	0-30	1-3	---	6.0-20	0.05-0.10	4.5-5.5	Low----------	0.10	5	<.5
Ousley	30-80	1-2	---	6.0-20	0.02-0.06	4.5-5.5	Low----------	0.15		
Pd---------------	0-33	1-8	1.50-1.70	6.0-20	0.04-0.07	4.5-5.5	Low----------	0.10	5	1-2
Pelham	33-60	15-30	1.30-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24		
Pe---------------	0-33	5-10	1.50-1.70	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1-2
Pelham	33-60	15-30	1.30-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24		
Rg---------------	0-7	1-8	1.10-1.40	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	2-4
Rigdon	7-15	2-8	1.35-1.65	0.6-2.0	0.10-0.15	3.6-5.5	Low----------	0.15		
	15-38	2-8	1.35-1.50	6.0-20	0.03-0.08	4.5-5.5	Low----------	0.10		
	38-80	15-35	1.45-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
Sa---------------	0-11	2-5	---	6.0-20	0.03-0.07	3.6-5.5	Low----------	0.10	5	1-3
Sapelo	11-20	3-7	---	0.6-2.0	0.10-0.15	3.6-5.5	Low----------	0.15		
	20-50	3-6	---	6.0-20	0.03-0.07	3.6-5.5	Low----------	0.17		
	50-70	10-30	---	0.6-2.0	0.12-0.17	3.6-5.5	Low----------	0.24		
StA--------------	0-24	3-8	1.35-1.60	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.10	5	.5-1
Stilson	24-45	15-30	1.40-1.60	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24		
	45-70	15-35	1.40-1.60	0.6-2.0	0.08-0.10	4.5-5.5	Low----------	0.17		
Su---------------	0-36	<10	1.50-1.70	2.0-20	0.05-0.10	3.6-5.0	Low----------	0.10	5	1-15
Surrency	36-44	10-18	1.60-1.85	2.0-6.0	0.06-0.10	4.5-5.5	Low----------	0.15		
	44-62	23-35	1.60-1.85	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.15		
TfA, TfB---------	0-9	3-8	1.30-1.55	6.0-20	0.03-0.08	4.5-5.5	Low----------	0.10	4	<1
Tifton	9-11	13-22	1.45-1.65	6.0-20	0.08-0.12	4.5-5.5	Low----------	0.24		
	11-48	20-35	1.50-1.75	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.24		
	48-65	25-40	1.55-1.80	0.2-0.6	0.10-0.13	4.5-5.5	Low----------	0.17		
TuB:*										
Tifton----------	0-9	3-8	1.30-1.55	6.0-20	0.03-0.08	4.5-5.5	Low----------	0.10	4	<1
	9-11	13-22	1.45-1.65	6.0-20	0.08-0.12	4.5-5.5	Low----------	0.24		
	11-48	20-35	1.50-1.75	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.24		
	48-65	25-40	1.55-1.80	0.2-0.6	0.10-0.13	4.5-5.5	Low----------	0.17		
Urban land.										
TyD:*										
Troup-----------	0-60	1-10	1.30-1.70	6.0-20	0.05-0.10	4.5-6.0	Very low-----	0.10	5	<1
	60-80	15-35	1.40-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.20		
Ailey-----------	0-26	3-8	1.40-1.55	6.0-20	0.03-0.05	4.5-6.5	Low----------	0.10	4	<1
	26-36	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24		
	36-70	18-32	1.70-1.80	0.06-0.2	0.06-0.10	4.5-5.5	Low----------	0.17		
Wa---------------	0-10	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	.5-5
Wahee	10-55	35-55	1.40-1.60	0.06-0.2	0.12-0.20	3.6-5.5	Moderate-----	0.28		
	55-80	---	---	0.2-0.6	0.12-0.20	3.6-5.5	Moderate-----	0.28		
WcB, WcC---------	0-24	4-12	1.30-1.70	6.0-20	0.05-0.11	4.5-6.0	Low----------	0.17	5	<1
Wicksburg	24-32	25-40	1.40-1.60	0.06-2.0	0.12-0.18	4.5-5.5	Low----------	0.20		
	32-72	35-45	1.30-1.50	0.06-0.2	0.14-0.18	4.5-5.5	Moderate-----	0.24		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AeC Ailey	B	None	---	---	>6.0	---	---	Moderate	Moderate.
AoA Albany	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	High	High.
Ba* Bayboro	D	None	---	---	+1-1.0	Apparent	Dec-May	High	High.
BbB, BgC Blanton	A	None	---	---	5.0-6.0	Perched	Dec-Mar	High	High.
BoC Bonifay	A	None	---	---	4.0-5.0	Perched	Jan-Feb	Low	High.
CbB Cainhoy	A	None	---	---	>6.0	---	---	Low	Moderate.
CeB2 Carnegie	C	None	---	---	>6.0	---	---	Low	Moderate.
CgC2:**									
Carnegie	C	None	---	---	>6.0	---	---	Low	Moderate.
Cowarts	C	None	---	---	>6.0	---	---	Moderate	Moderate.
Ch:**									
Chastain	D	Frequent	Very long	Dec-Apr	0-1.0	Apparent	Nov-May	High	High.
Tawcaw	C	Frequent	Long	Dec-Apr	1.5-2.5	Apparent	Nov-Apr	High	High.
CnA, CnB Clarendon	C	None	---	---	2.0-3.0	Apparent	Dec-Mar	Moderate	High.
CsD2:**									
Cowarts	C	None	---	---	>6.0	---	---	Moderate	Moderate.
Sunsweet	C	None	---	---	>6.0	---	---	Moderate	Moderate.
Da* Dasher	D	None	---	---	+3-0.5	Apparent	Nov-Aug	High	High.
DoA, DoB Dothan	B	None	---	---	3.0-5.0	Perched	Jan-Apr	Moderate	Moderate.
EoB, EoD Esto	B	None	---	---	>6.0	---	---	High	High.
ErD:**									
Esto	B	None	---	---	>6.0	---	---	High	High.
Rock outcrop.									
FsB Fuquay	B	None	---	---	4.0-6.0	Perched	Jan-Mar	Low	High.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
KeC--------------- Kershaw	A	None--------	---	---	>6.0	---	---	Low------	High.
KJ:**									
Kinston----------	B/D	Frequent----	Brief-----	Nov-Jun	0-1.0	Apparent	Nov-Jun	High-----	High.
Johnston*--------	D	Frequent----	Brief to long.	Nov-Jul	+1-1.5	Apparent	Nov-Jun	High-----	High.
Le---------------- Leefield	C	None--------	---	---	1.5-2.5	Apparent	Dec-Mar	Moderate	High.
Lu:**									
Leefield---------	C	None--------	---	---	1.5-2.5	Apparent	Dec-Mar	Moderate	High.
Urban land.									
OB:**									
Osier------------	A/D	Frequent----	Brief-----	Dec-Apr	0-1.0	Apparent	Nov-Mar	High-----	High.
Bibb-------------	C	Frequent----	Brief-----	Dec-May	0.5-1.5	Apparent	Dec-Apr	High-----	Moderate.
Ou---------------- Ousley	C	Occasional	Brief-----	Dec-Apr	1.5-3.0	Apparent	Dec-May	Low------	High.
Pd*--------------- Pelham	B/D	None--------	---	---	+1-1.5	Apparent	Jan-Apr	High-----	High.
Pe---------------- Pelham	B/D	Occasional	Brief-----	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	High-----	High.
Rg---------------- Rigdon	C	None--------	---	---	1.5-2.5	Apparent	Feb-Jul	High-----	High.
Sa---------------- Sapelo	D	None--------	---	---	0.5-1.5	Apparent	Nov-Apr	High-----	High.
StA--------------- Stilson	B	None--------	---	---	2.5-3.0	Apparent	Dec-Apr	Moderate	High.
Su*--------------- Surrency	D	None--------	---	---	+1-0.5	Apparent	Dec-Apr	High-----	High.
TfA, TfB---------- Tifton	B	None--------	---	---	3.5-6.0	Perched	Jan-Feb	Low------	Moderate.
TuB:**									
Tifton-----------	B	None--------	---	---	3.5-6.0	Perched	Jan-Feb	Low------	Moderate.
Urban land.									
TyD:**									
Troup------------	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
Ailey------------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Wa---------------- Wahee	D	Occasional	Very brief to brief.	Dec-Apr	0.5-1.5	Apparent	Dec-Mar	High-----	High.
WcB, WcC---------- Wicksburg	B	None--------	---	---	>6.0	---	---	High-----	High.

TABLE 17.--SOIL AND WATER FEATURES--Continued

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* In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--PHYSICAL PROPERTIES OF SELECTED SOILS

Soil series and sample numbers	Depth	Horizon	Particle-size distribution (Percent less than 2mm)							
			Total			Sand				
			Clay (<.002)	Silt (.002-.05)	Sand (.05-2)	Very Fine (.05-.10)	Fine (.10-.25)	Medium (.25-.50)	Coarse (.5-.50)	Very Coarse (1.0-2.0)
	in									
Esto: *										
S82GA-69-1										
82-1971	0-5	A	6.4	14.4	79.2	6.8	35.6	18.8	13.2	4.8
82-1972	11-35	Bt1 and Bt2	43.8	11.5	44.7	5.4	25.2	8.4	4.8	0.8
82-1973	35-70	Bt3	49.4	22.4	28.2	4.2	15.0	4.6	3.4	1.0
Tawcaw: **										
S82GA-69-2										
82-1974	0-5	A	39.2	33.2	27.6	2.8	14.6	5.6	3.0	1.6
82-1975	11-20	Bw2	44.8	25.2	30.0	3.8	19.6	5.4	1.0	0.2

* Esto loamy sand, 2 to 5 percent slopes: 2.9 miles west on county road from Pridgen, 1.2 miles north on a dirt road, 1.2 miles west on a private road, 100 feet north of the road; in Coffee County. This is the typical pedon for the series in this survey area.

** Tawcaw clay loam, in an area of Chastain-Tawcaw complex, frequently flooded: 0.50 mile southeast on U.S. Highway 441 from the Ocmulgee River to a private north-south road that joins U.S. Highway 441 from the south, 0.82 mile south on the private road, 200 feet west; in Coffee County. This is the typical pedon for the series in this survey area.

TABLE 19.--MINERALOGY OF SELECTED SOILS

[The symbol < means less than; > means more than. Dashes indicate none detected]

Soil series* and sample numbers	Depth	Horizon	Clay Mineralogy (X-ray <2U)				
			Vermiculite/Chlorite	Kaolinite	Geothite	Gibbsite	Quartz
	In		Pct	Pct	Pct	Pct	Pct
Esto: S82GA-69-1 82-1972	11-35	Bt1 and Bt2	<10	>70	<10	---	<10
Tawcaw: S82GA-69-2 82-1975	11-20	Bw2	20-30	<50	5-10	5-10	<10

* These are the typical pedons for the soil series in this survey area. See the section "Soil Series and Their Morphology" for pedon location.

TABLE 20.--ENGINEERING INDEX TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon and depth in inches	Classification		Grain-size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Max-dry density	Optimum Moisture
										Pct		Lb/Ft^3	Pct
Albany sand: *													
(S80GA-005-2)													
E2 -- 22-48	A-2-4(0)	SM	100	100	79	19	7	5	3	---	NP	115	8
Btg-- 55-70	A-2-4(0)	SM	100	100	79	21	16	14	13	---	NP	118	10
Pelham loamy soil: *													
(S80GA-003-1)													
E1 -- 8-26	A-2-4(0)	SM	100	100	87	19	7	3	2	---	NP	111	8
Bt3-- 46-60	A-2-4(0)	SM	100	100	88	27	19	16	15	---	NP	123	10
Sapelo fine sand: *													
(S80GA-005-3)													
E -- 4-13	A-2-4(0)	SM	100	100	86	18	7	3	2	---	NP	110	10
Bh2-- 15-18	A-2-4(0)	SM	100	100	80	18	8	4	3	---	NP	116	9
E' -- 22-52	A-2-4(0)	SM	100	100	77	20	7	4	3	---	NP	113	9
Btg-- 52-70	A-2-4(0)	SM	100	100	83	23	14	12	11	---	NP	121	10
Stilson loamy sand: *													
(S80GA-069-14)													
E -- 6-32	A-2-4(0)	SM	100	100	87	20	11	8	6	---	NP	121	8
Btv2-- 48-54	A-2-4(0)	SM	100	100	84	26	20	17	16	20	4	122	11

* The location of each pedon sampled is listed below.

Albany sand: 0.6 mile east of Hurricane Creek on Georgia Highway 32, 1.3 miles north on county-maintained road, 0.2 mile northwest on a dirt road, 900 feet west of the road; in Bacon County. This is the typical pedon for the series in this survey area.

Pelham loamy sand: 2.7 miles generally north on Georgia Highway 149 from the intersection with Georgia Highway 90, 1.7 miles generally east on a dirt road, 0.8 mile north on a dirt road; 2600 feet west of the road; in Atkinson County. This soil is a taxadjunct to the Pelham series. Clay content of the control section is a little less than the allowable 15 percent. This pedon was mapped as an inclusion in Pelham loamy sand, occasionally flooded.

Sapelo fine sand: 3.3 miles north on U.S. Highway 1 from Hurricane Creek, 2.3 miles generally east on a dirt road from U.S. Highway 1, 70 feet north of the road; in Bacon County.

Stilson loamy sand: 0.3 mile north on Georgia Highway 149 from the Atkinson and Coffee Counties line, 0.3 mile east of the highway; in Coffee County.

TABLE 21.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Ailey	Loamy, siliceous, thermic Arenic Hapludults
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Bayboro	Clayey, mixed, thermic Umbric Paleaquults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bonifay	Loamy, siliceous, thermic Grossarenic Plinthic Paleudults
Cainhoy	Thermic, coated Typic Quartzipsamments
Carnegie	Clayey, kaolinitic, thermic Plinthic Paleudults
Chastain	Fine, mixed, acid, thermic Typic Fluvaquents
Clarendon	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Cowarts	Fine-loamy, siliceous, thermic Typic Hapludults
Dasher	Dysic, thermic Typic Medihemists
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Esto	Clayey, kaolinitic, thermic Typic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Johnston	Coarse-loamy, siliceous, acid, thermic Cumulic Humaquepts
Kershaw	Thermic, uncoated Typic Quartzipsamments
Kinston	Fine-loamy, siliceous, acid, thermic Typic Fluvaquents
Leefield	Loamy, siliceous, thermic Arenic Plinthaquic Paleudults
Osier	Siliceous, thermic Typic Psammaquents
*Ousley	Thermic, uncoated Aquic Quartzipsamments
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Rigdon	Sandy, siliceous, thermic Ultic Haplohumods
Sapelo	Sandy, siliceous, thermic Ultic Haplaquods
Stilson	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Sunsweet	Clayey, kaolinitic, thermic Plinthic Paleudults
Surrency	Loamy, siliceous, thermic Arenic Umbric Paleaquults
*Tawcaw	Fine, kaolinitic, thermic Fluvaquentic Dystrochrepts
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
Troup	Loamy, siliceous, thermic Grossarenic Paleudults
Wahee	Clayey, mixed, thermic Aeric Ochraquults
Wicksburg	Clayey, kaolinitic, thermic Arenic Paleudults

* The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series.

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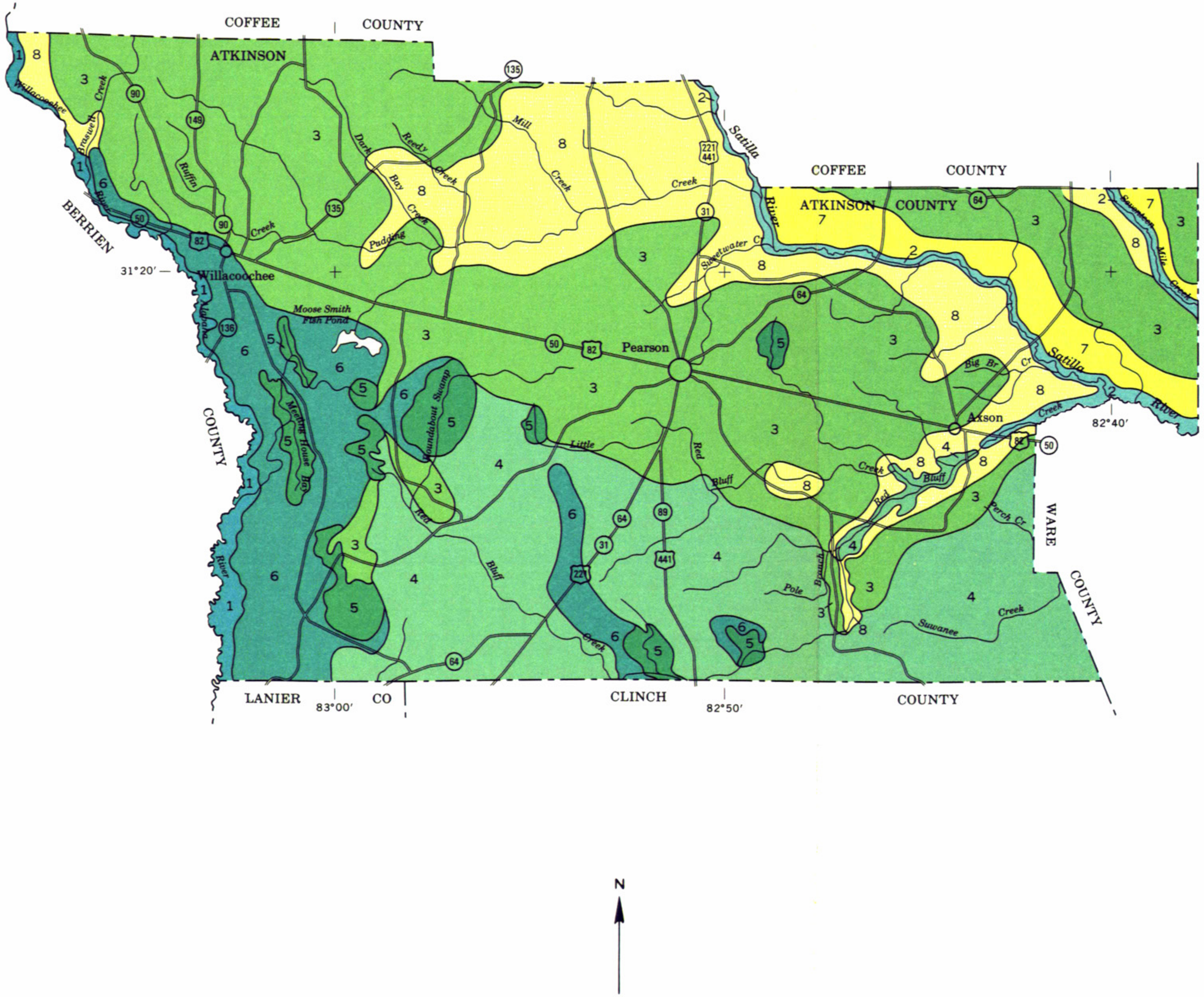

LEGEND

NEARLY LEVEL SOILS ON FLOOD PLAINS

1 Osier-Bibb: Poorly drained soils that are sandy or loamy

2 Kinston-Johnston: Poorly drained and very poorly drained soils that are mainly loamy

PREDOMINANTLY NEARLY LEVEL SOILS ON UPLANDS

3 Leefield-Pelham: Somewhat poorly drained soils in smooth areas and poorly drained soils in smooth areas and in drainageways; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

4 Sapelo-Surrency-Pelham: Poorly drained soils in smooth areas and in drainageways and very poorly drained soils in depressions; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

5 Dasher: Very poorly drained, organic soils in depressions

6 Albany-Blanton-Surrency: Somewhat poorly drained soils in smooth areas, moderately well drained soils mainly on ridges, and very poorly drained soils in depressions; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

NEARLY LEVEL TO GENTLY SLOPING SOILS ON UPLANDS

7 Kershaw-Blanton: Excessively drained and moderately well drained soils mainly on ridges; these soils are sandy throughout or they have a sandy surface layer and subsurface layer and a loamy subsoil

8 Fuquay-Tifton-Carnegie: Well drained soils on ridgetops and hillsides; these soils have mainly a sandy surface layer or a sandy surface layer and subsurface layer and a loamy or clayey subsoil

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UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

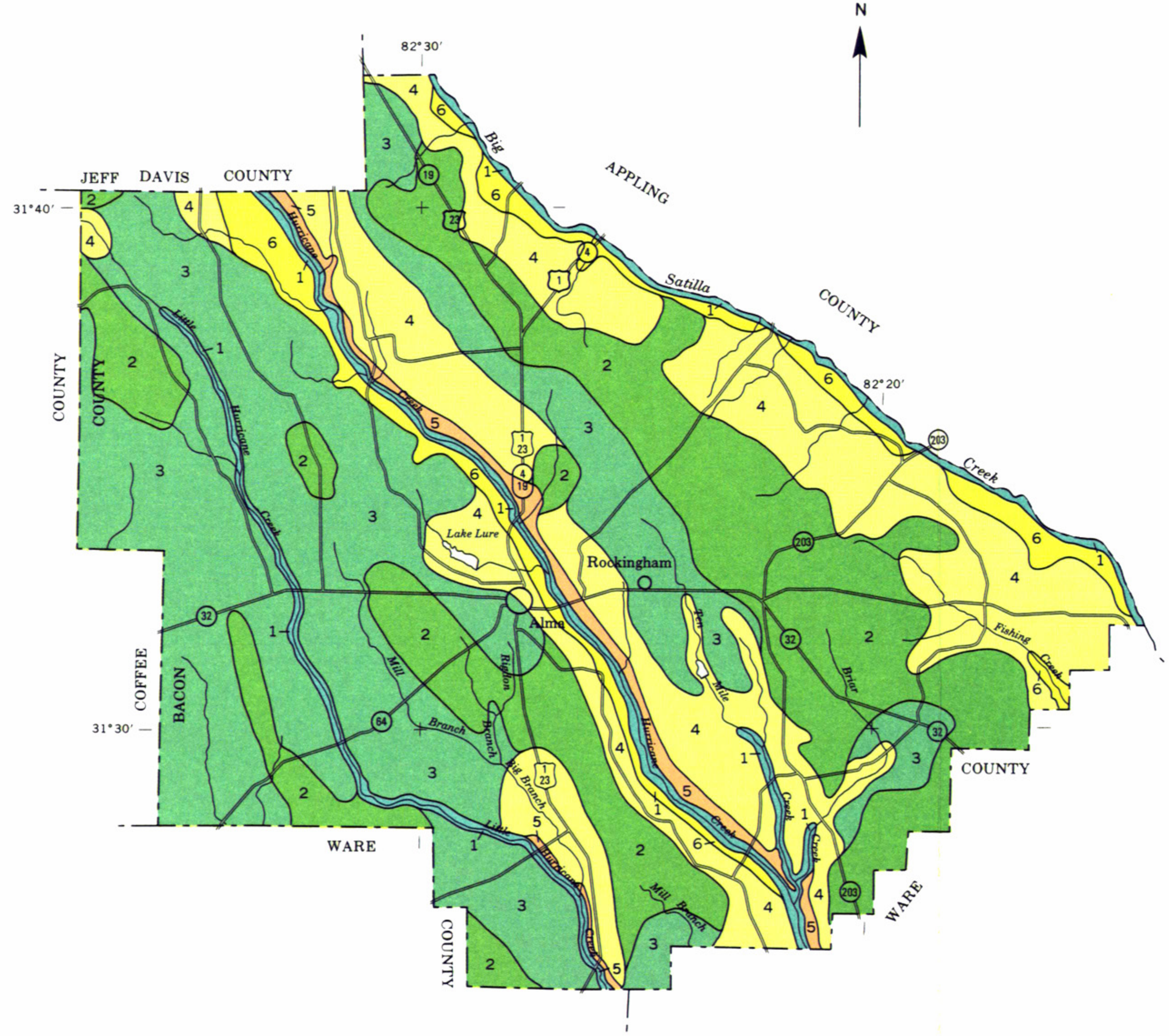
ATKINSON COUNTY, GEORGIA

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



LEGEND

NEARLY LEVEL SOILS ON FLOOD PLAINS

1	Kinston-Johnston: Poorly drained and very poorly drained soils that are mainly loamy

NEARLY LEVEL SOILS ON UPLANDS

2	Pelham-Rigdon-Sapelo: Poorly drained soils in smooth areas and in drainageways and somewhat poorly drained soils in smooth areas; these soils have a sandy surface layer and subsurface layer and a loamy subsoil
3	Leefield-Pelham-Stilson: Somewhat poorly drained and moderately well drained soils in smooth areas and poorly drained soils in smooth areas and in drainageways; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

NEARLY LEVEL TO GENTLY SLOPING SOILS ON UPLANDS

4	Fuquay-Clarendon-Tifton: Well drained soils on ridgetops and moderately well drained soils in smooth and undulating areas; these soils have a sandy surface layer or a sandy surface layer and subsurface layer and a loamy subsoil
5	Kershaw: Excessively drained soils on ridges; these soils are sandy throughout
6	Carnegie-Ailey-Bonifay: Well drained soils on ridgetops and hillsides; these soils have a loamy surface layer and a clayey subsoil or a sandy surface layer and subsurface layer and a loamy subsoil

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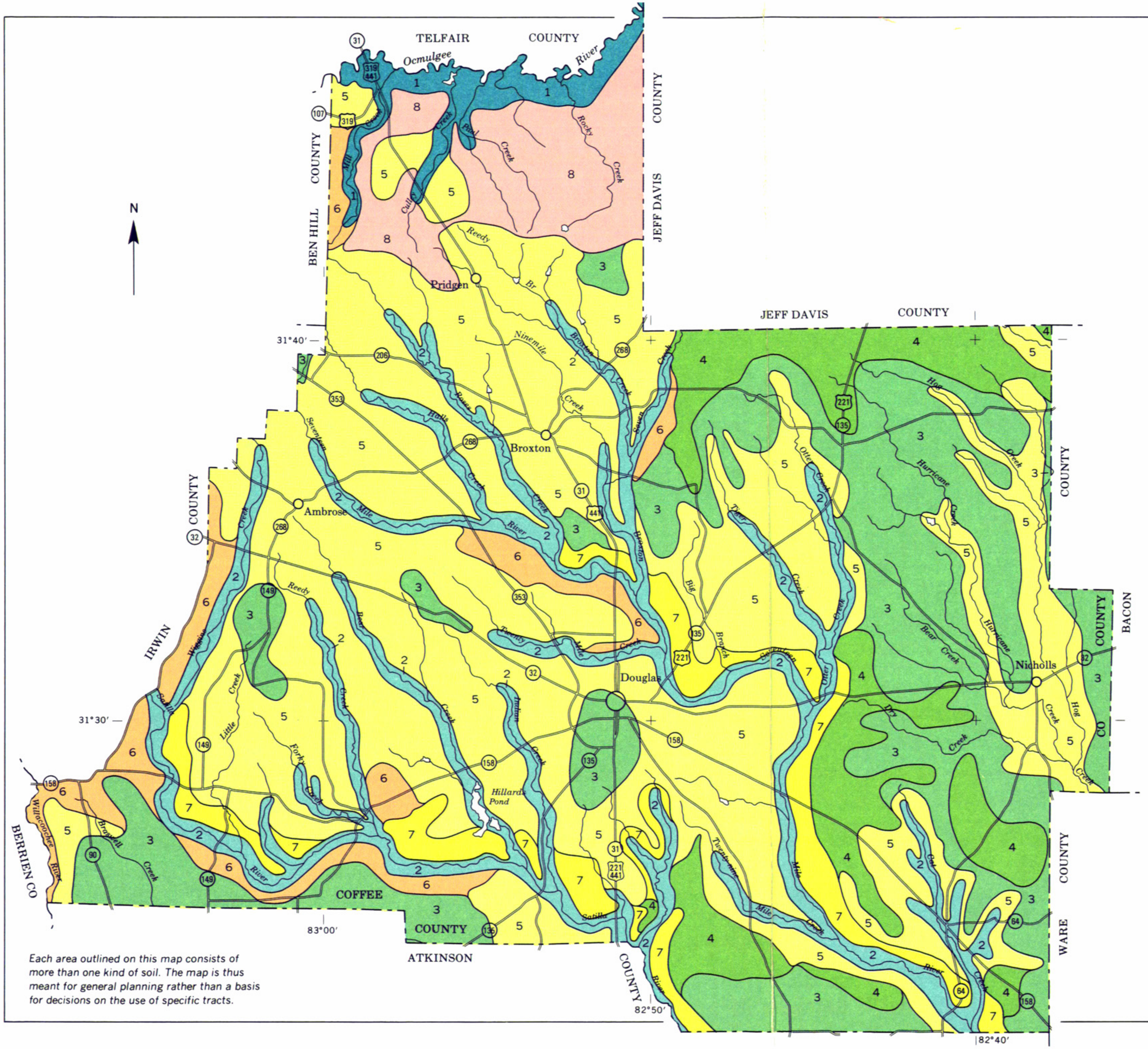
GENERAL SOIL MAP

BACON COUNTY, GEORGIA

Scale 1:190,080



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

LEGEND

NEARLY LEVEL SOILS ON FLOOD PLAINS

1	Chastain-Tawcaw: Poorly drained and somewhat poorly drained soils that are clayey or loamy throughout
2	Kinston-Johnston: Poorly drained and very poorly drained soils that are mainly loamy

NEARLY LEVEL SOILS ON UPLANDS

3	Leefield-Albany-Pelham: Somewhat poorly drained soils in smooth areas and poorly drained soils in smooth areas and in drainageways; these soils have a sandy surface layer and subsurface layer and a loamy subsoil
4	Pelham-Ridgdon-Surrency: Poorly drained soils in smooth areas and in drainageways, somewhat poorly drained soils in smooth areas, and very poorly drained soils in depressions; these soils have a sandy surface layer and subsurface layer and a loamy subsoil

NEARLY LEVEL TO GENTLY SLOPING SOILS ON UPLANDS

5	Tifton-Carnegie-Fuquay: Well drained soils on ridgetops and hillsides; these soils have a sandy or loamy surface layer or a sandy surface layer and subsurface layer and a loamy or clayey subsoil
6	Fuquay-Bonifay: Well drained soils on ridgetops and hillsides; these soils have a sandy surface layer and subsurface layer and a loamy subsoil
7	Kershaw-Blanton: Excessively drained and moderately well drained soils on ridges; these soils are sandy throughout or they have a sandy surface layer and subsurface layer and a loamy subsoil

VERY GENTLY SLOPING TO STRONGLY SLOPING SOILS ON UPLANDS

8	Bonifay-Esto-Ailey: Well drained soils on ridgetops and hillsides; these soils have a sandy surface layer and subsurface layer and a loamy or clayey subsoil

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GENERAL SOIL MAP

COFFEE COUNTY, GEORGIA

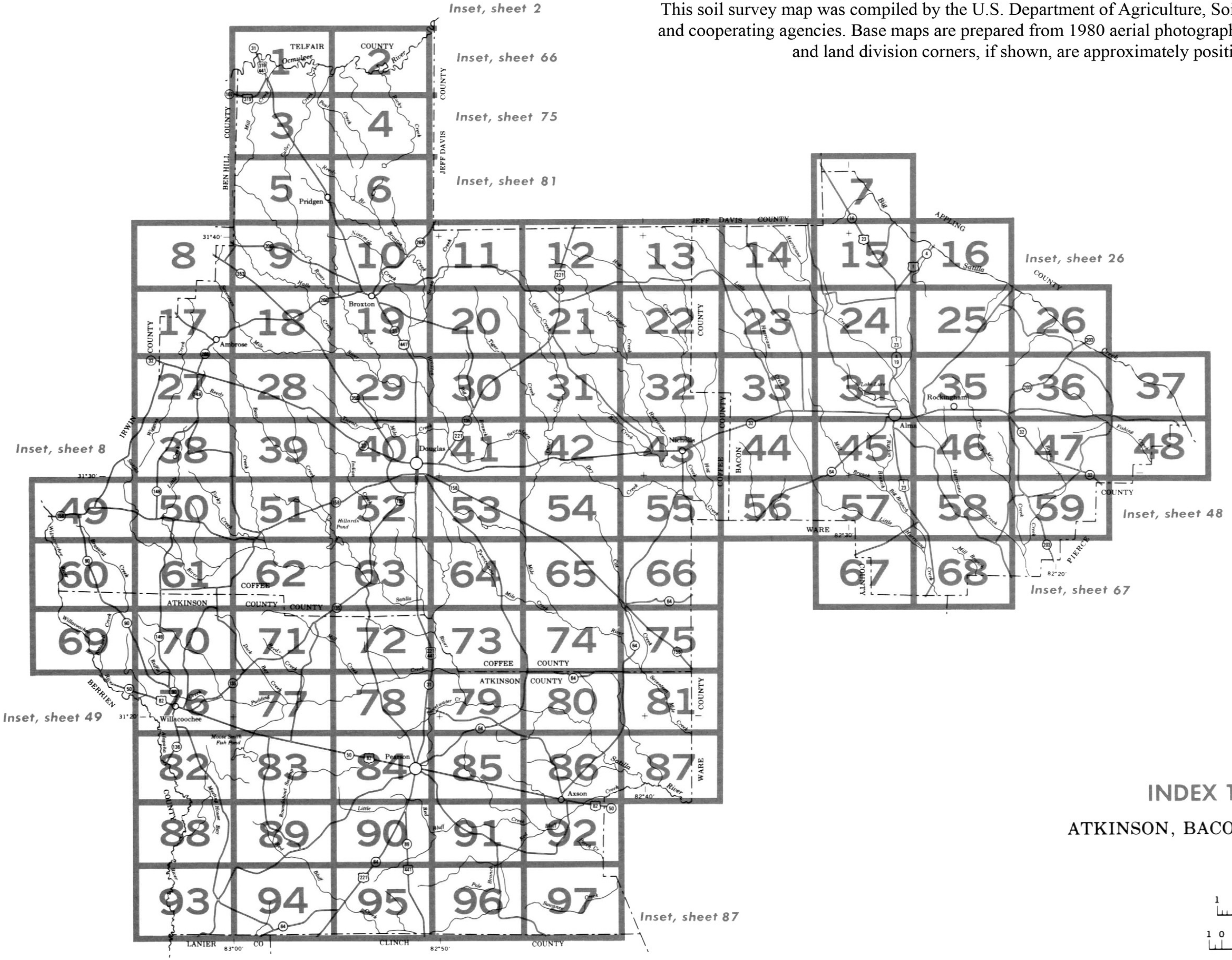
Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

Original text from each individual map sheet read:

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



INDEX TO MAP SHEETS

ATKINSON, BACON, AND COFFEE COUNTIES
GEORGIA

Scale 1:316,800

1 0 1 2 3 4 5 Miles

1 0 5 10 Km

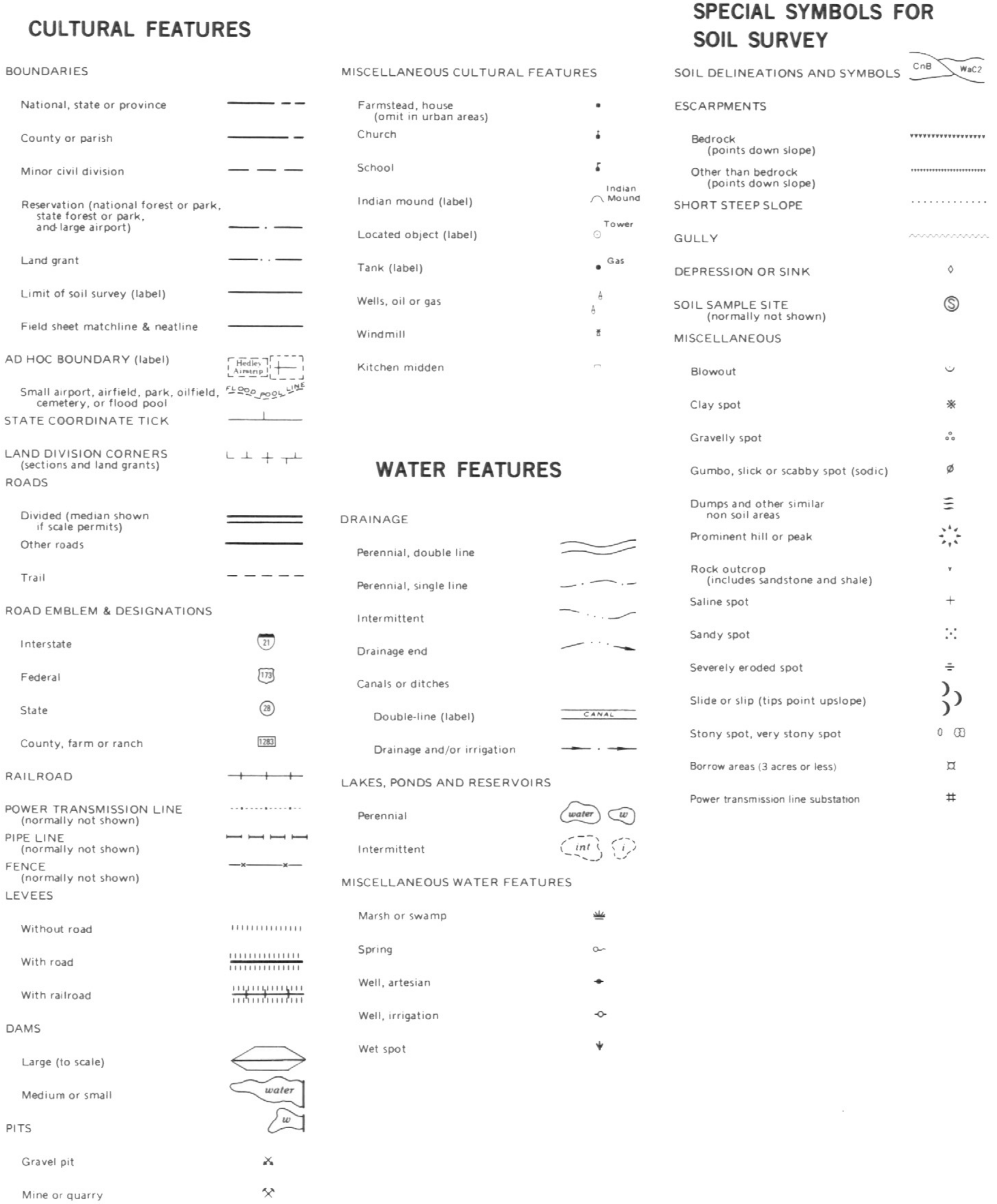
SOIL LEGEND

Soil map symbols and map unit names are alphabetical. The first letter of the map symbol, always a capital, is the initial letter of the soil name. The second letter is a small letter except in broadly defined map units, in which case it is a capital letter. The third letter, if used, is a capital letter and connotes slopes class. A terminal number 2 in the symbol indicates that the soil is moderately eroded. Symbols without a slope letter are for nearly level soils or miscellaneous areas.

SYMBOL	NAME
AeC	Ailey loamy coarse sand, 2 to 8 percent slopes
AoA	Albany sand, 0 to 2 percent slopes
Ba	Bayboro loam, ponded
BbB	Blanton sand, 0 to 8 percent slopes
BgC	Blanton fine gravelly sand, 2 to 8 percent slopes
BoC	Bonifay sand, 2 to 8 percent slopes
CbB	Cainhoy sand, 0 to 5 percent slopes
CeB2	Carnegie sandy loam, 3 to 5 percent slopes, eroded
CgC2	Carnegie-Cowarts complex, 5 to 8 percent slopes, eroded
Ch	Chastain-Tawcaw complex, frequently flooded
CnA	Clarendon loamy sand, 0 to 2 percent slopes
CnB	Clarendon loamy sand, 2 to 5 percent slopes
CsD2	Cowarts-Sunsweet complex, 8 to 17 percent slopes, eroded
Da	Dasher muck, ponded
DoA	Dothan loamy sand, 0 to 2 percent slopes
DoB	Dothan loamy sand, 2 to 5 percent slopes
EoB	Esto loamy sand, 2 to 5 percent slopes
EoD	Esto loamy sand, 5 to 12 percent slopes
ErD	Esto-Rock outcrop complex, 5 to 12 percent slopes
FsB	Fuquay loamy sand, 1 to 5 percent slopes
KeC	Kershaw coarse sand, 2 to 8 percent slopes
KJ	Kinston and Johnston soils, frequently flooded 1/
Le	Leefield loamy sand
Lu	Leefield-Urban land complex
OB	Osier-Bibb association, frequently flooded 1/
Ou	Ousley loamy fine sand, occasionally flooded
Pd	Pelham sand, ponded
Pe	Pelham loamy sand, occasionally flooded
Rg	Rigdon sand
Sa	Sapelo fine sand
StA	Stilson loamy sand, 0 to 2 percent slopes
Su	Surrency loamy sand, ponded
TfA	Tifton loamy sand, 0 to 2 percent slopes
TfB	Tifton loamy sand, 2 to 5 percent slopes
TuB	Tifton-Urban land complex, 2 to 5 percent slopes
TyD	Troup-Ailey coarse sands, 8 to 17 percent slopes
Wa	Wahee fine sandy loam, frequently flooded
WcB	Wicksburg loamy sand, 2 to 5 percent slopes
WcC	Wicksburg loamy sand, 5 to 8 percent slopes

1/ Broadly defined map units. Fewer soil examinations were made in these mapping units. Delineations and included areas are generally larger than those of other units. The mapping units were designed primarily for woodland management.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND



CULTURAL FEATURES

BOUNDARIES

National, state or province

County or parish

Minor civil division

Reservation (national forest or park, state forest or park, and large airport)

Land grant

Limit of soil survey (label)

Field sheet matchline & neatline

AD HOC BOUNDARY (label)

Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

Divided (median shown if scale permits)

Other roads

Trail

ROAD EMBLEM & DESIGNATIONS

Interstate

Federal

State

County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

Without road

With road

With railroad

DAMS

Large (to scale)

Medium or small

PITS

Gravel pit

Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)

Church

School

Indian mound (label)

Located object (label)

Tank (label)

Wells, oil or gas

Windmill

Kitchen midden

WATER FEATURES

DRAINAGE

Perennial, double line

Perennial, single line

Intermittent

Drainage end

Canals or ditches

Double-line (label)

Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

Perennial

Intermittent

MISCELLANEOUS WATER FEATURES

Marsh or swamp

Spring

Well, artesian

Well, irrigation

Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

Bedrock (points down slope)

Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

Blowout

Clay spot

Gravelly spot

Gumbo, slick or scabby spot (sodic)

Dumps and other similar non soil areas

Prominent hill or peak

Rock outcrop (includes sandstone and shale)

Saline spot

Sandy spot

Severely eroded spot

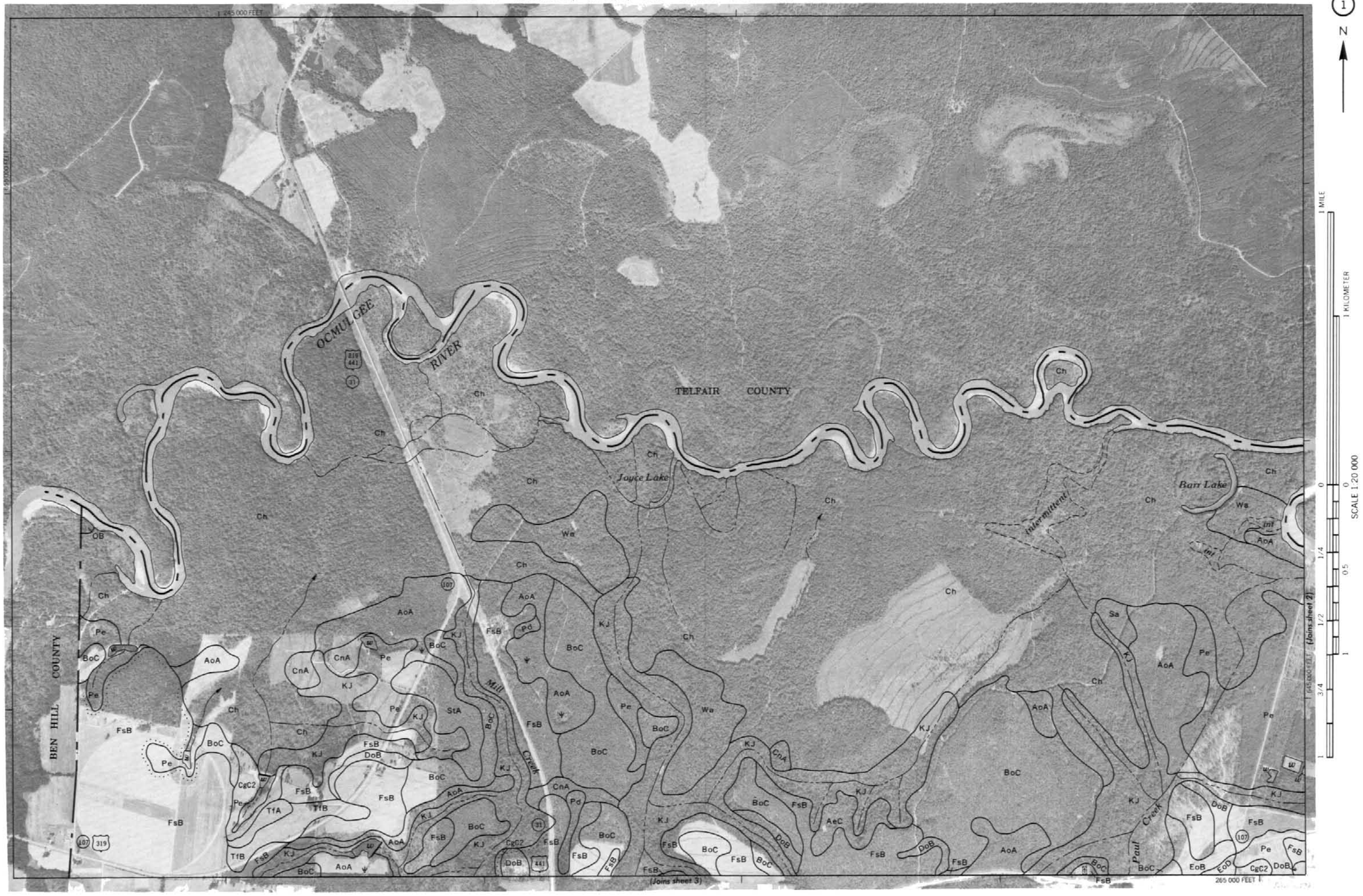
Slide or slip (tips point upslope)

Stony spot, very stony spot

Borrow areas (3 acres or less)

Power transmission line substation

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 1



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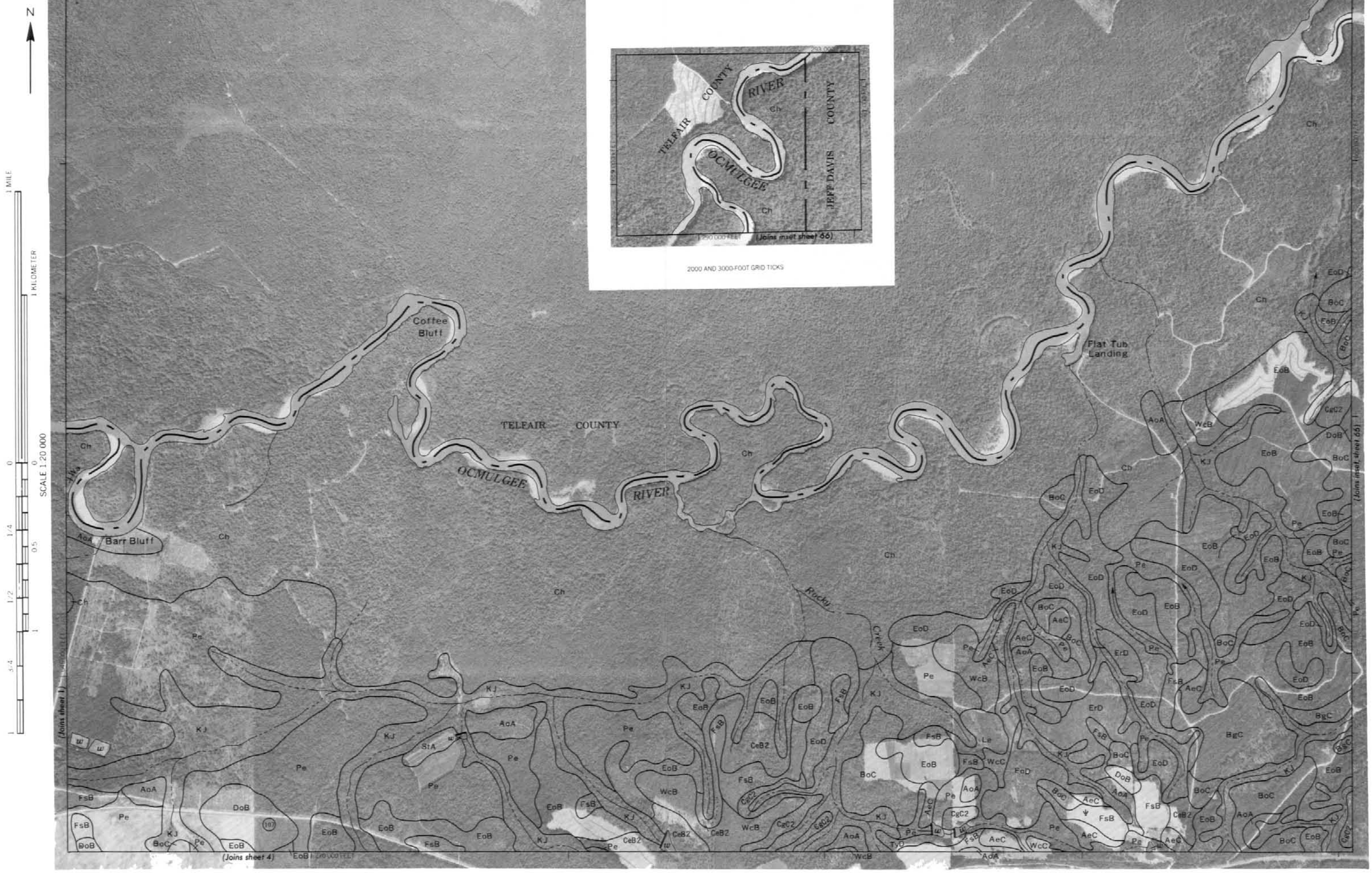

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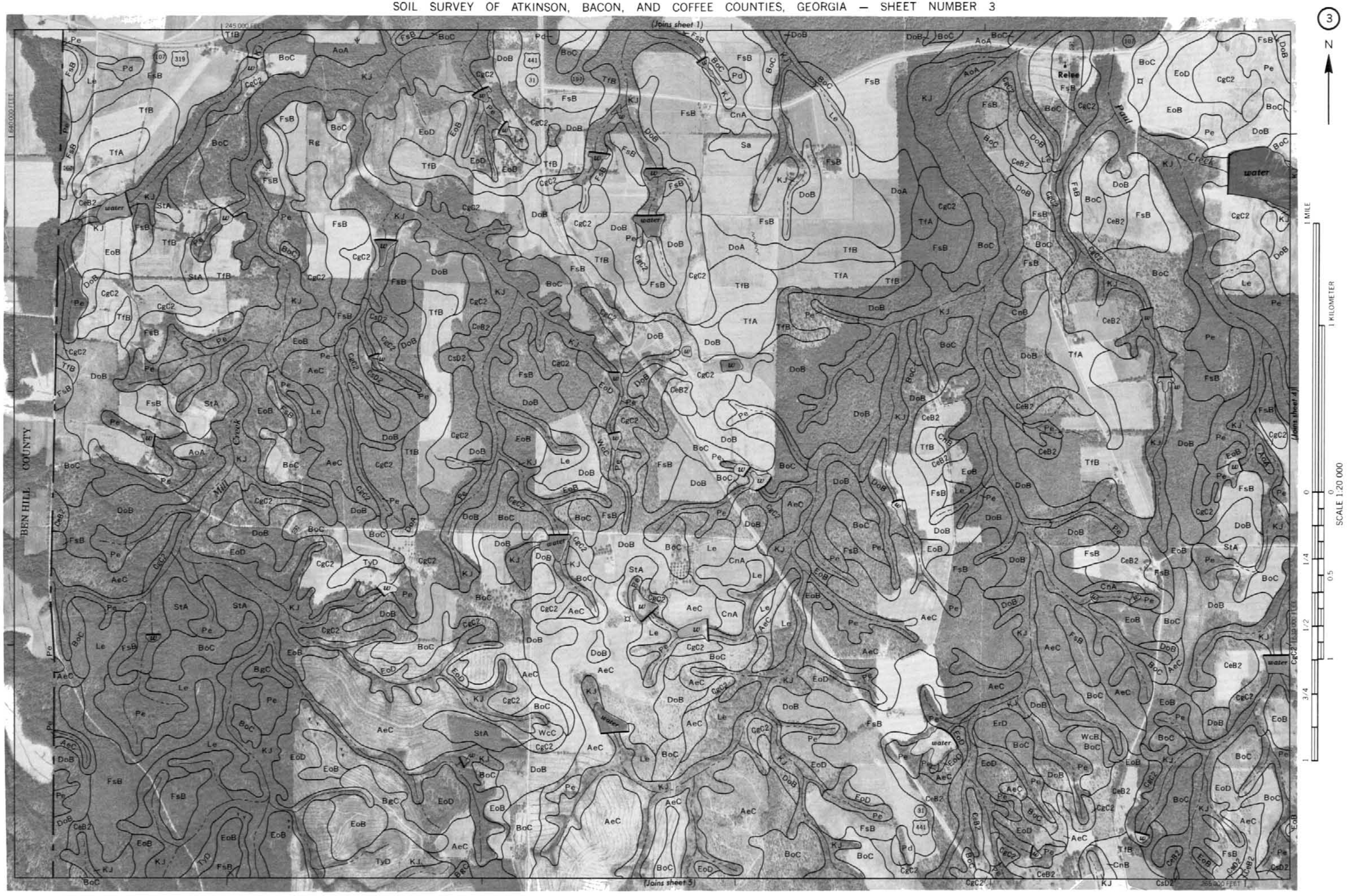

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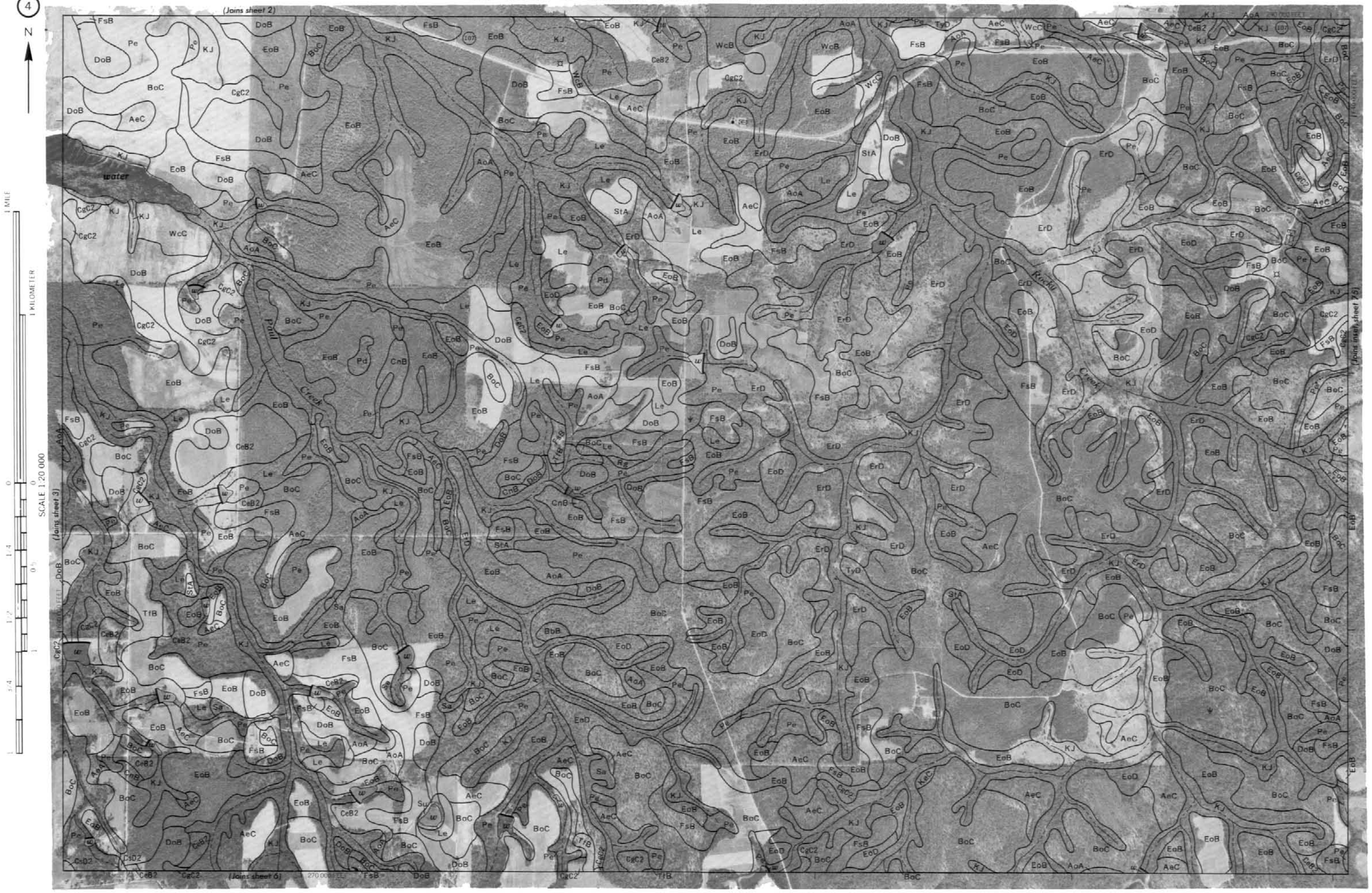

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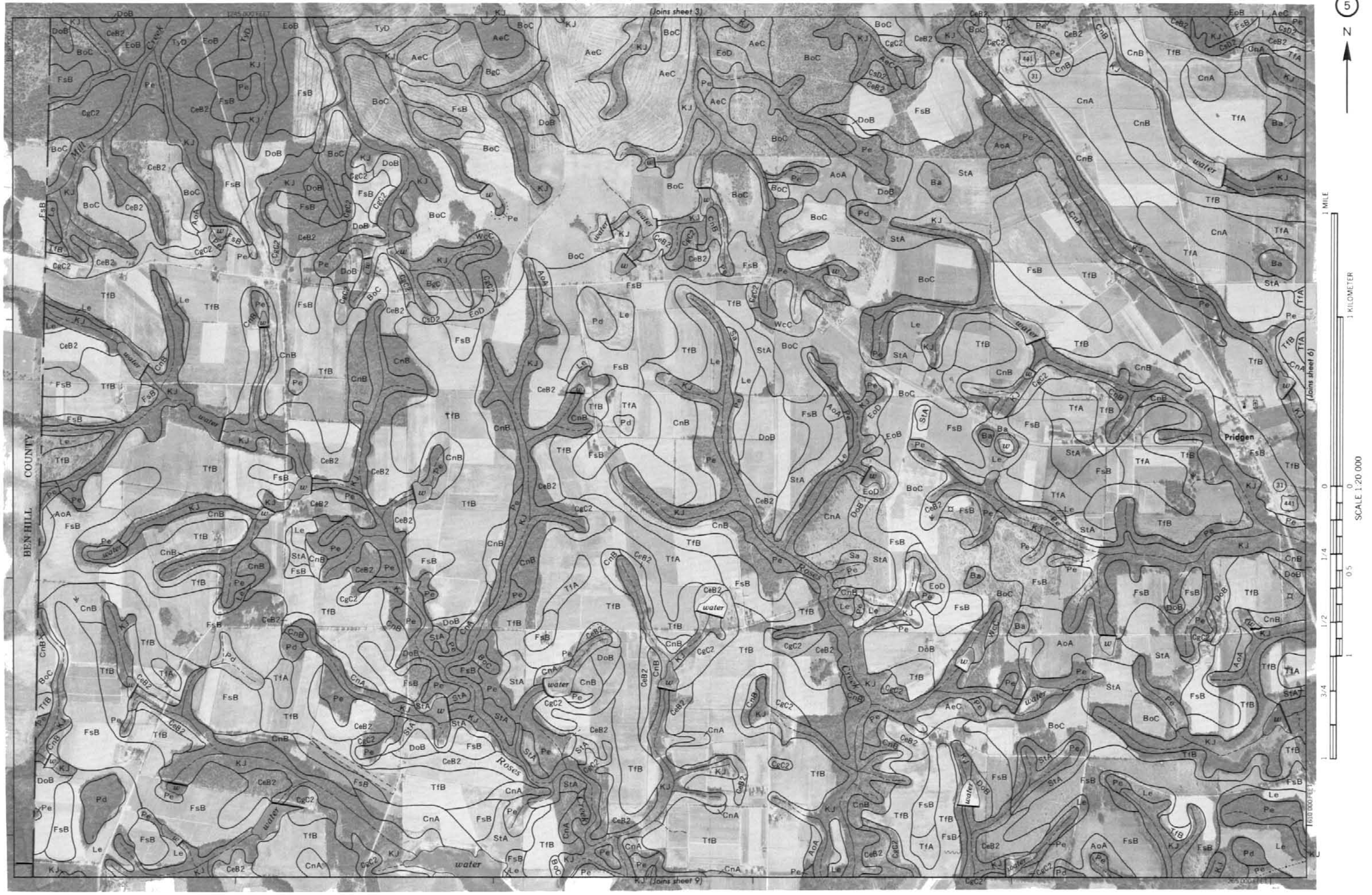
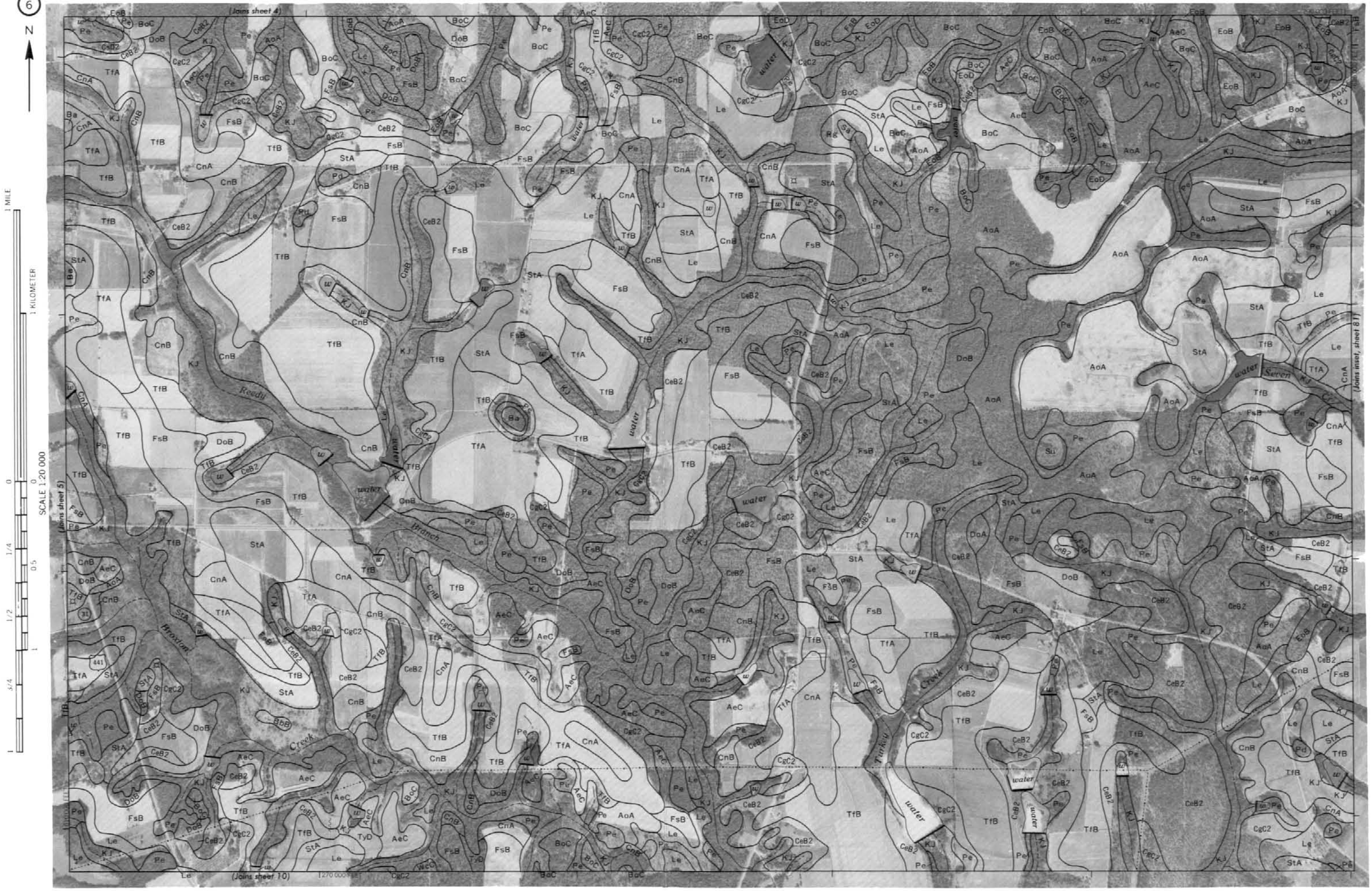
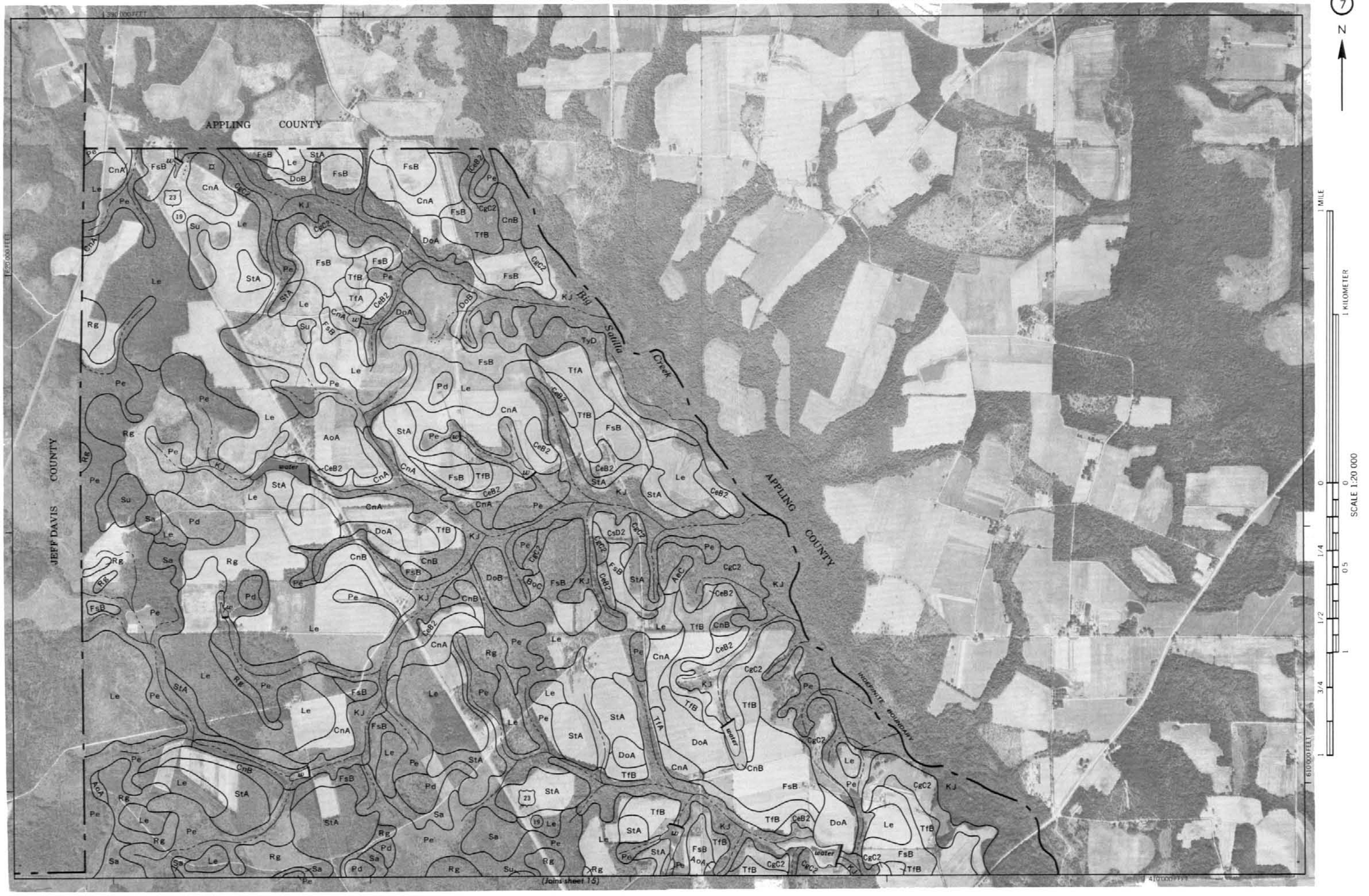



N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 4)
(Joins sheet 5)
(Joins sheet 10)
(Joins inset, sheet 8 1)
Reedy
Branch
Broxton
Creek
Turkey
Creek
Seven
Cr
water
441
31
270 000 FEET

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 7



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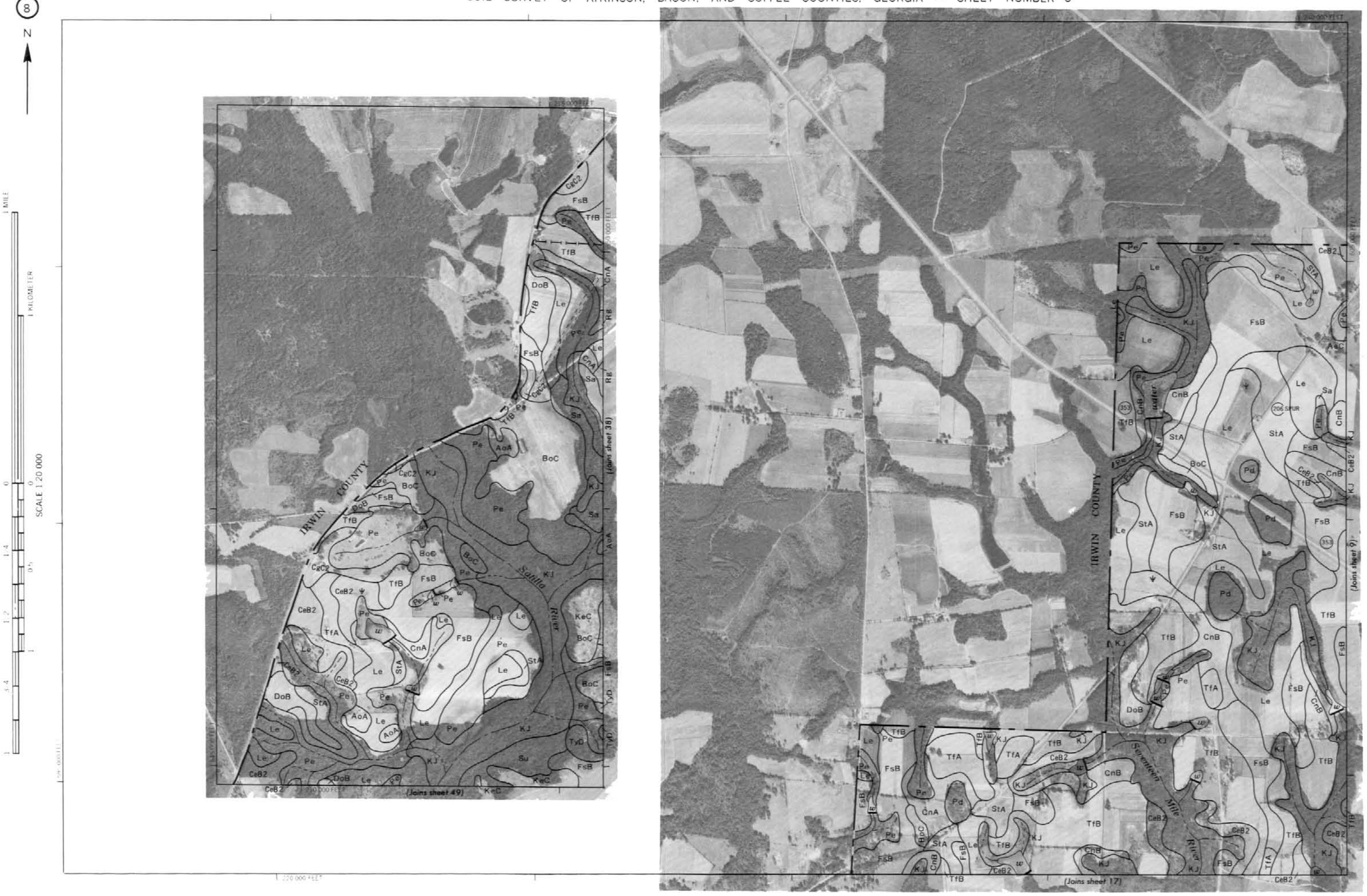
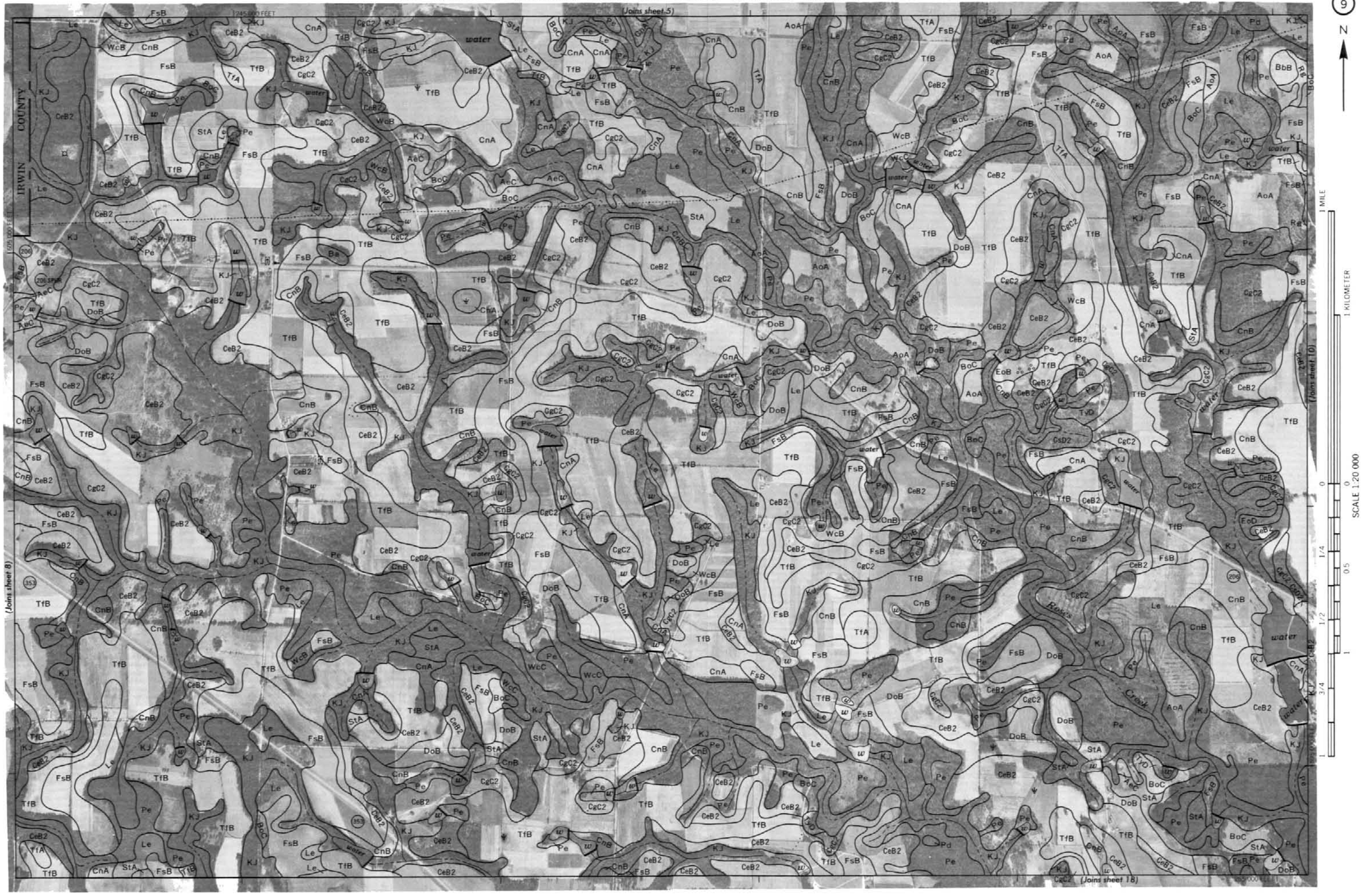
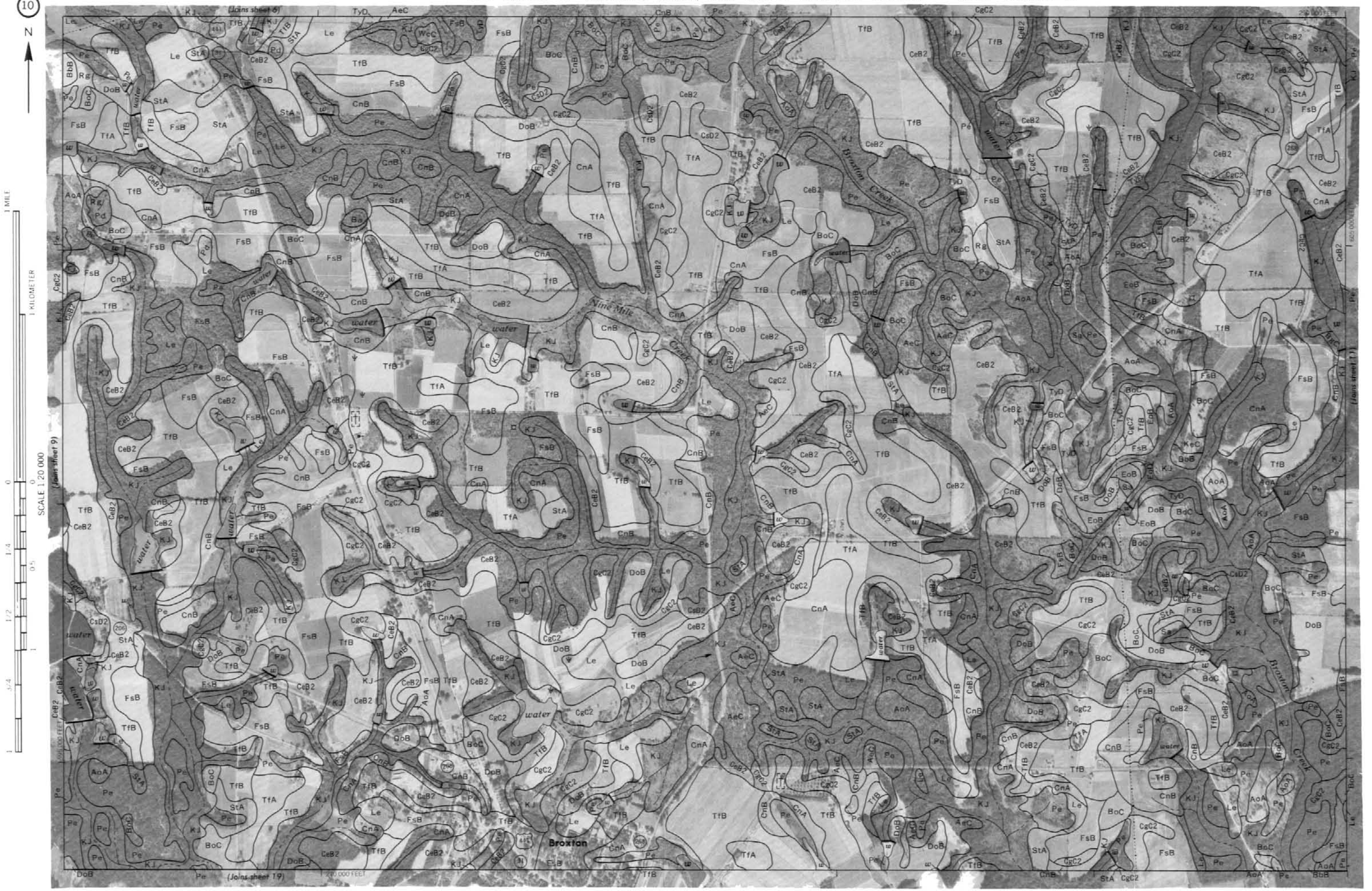
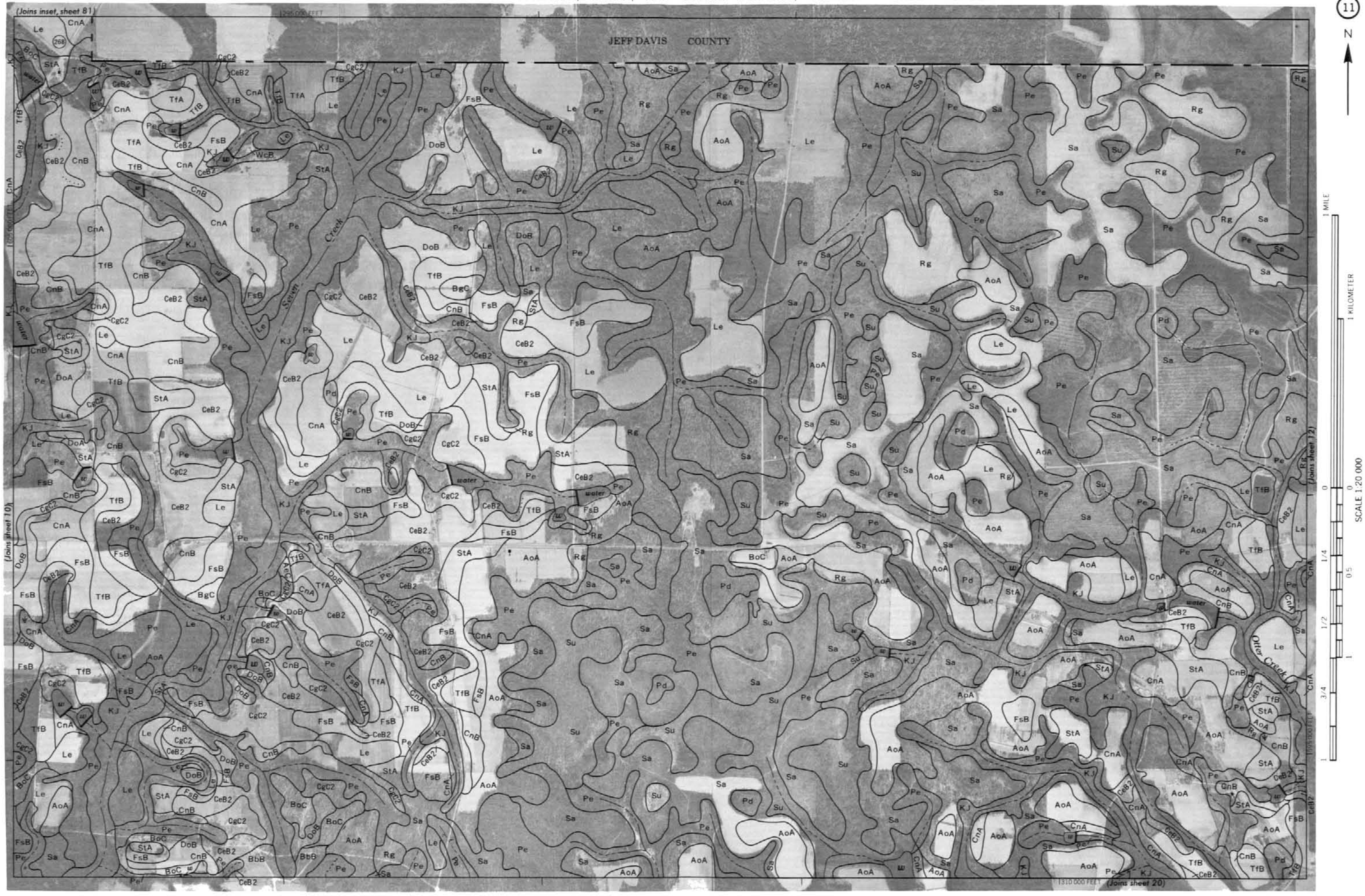
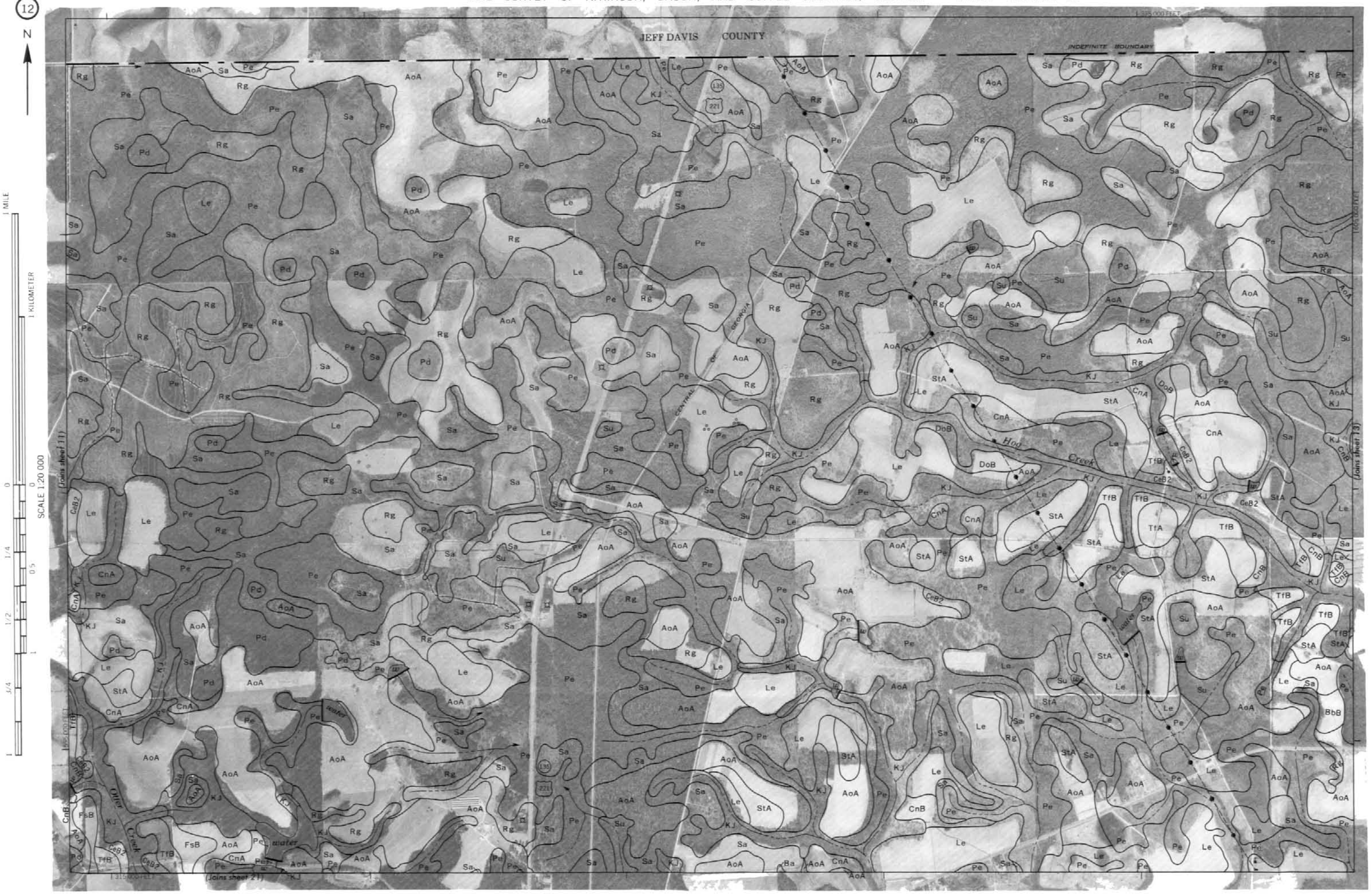



(Joins sheet 5)
(Joins sheet 10)
(Joins sheet 18)
(Joins sheet 8)
IRWIN COUNTY
N
1 MILE
1 KILOMETER
SCALE 1:20 000
Roses Creek
water


N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
0.5
1/2
1
3/4
(Joins sheet 6)
(Joins sheet 9)
(Joins sheet 11)
(Joins sheet 19)
Nine Mile Creek
Broxton Creek
Broxton
water
260 000 FEET
605 000 FEET
600 000 FEET
270 000 FEET

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 11




N
JEFF DAVIS COUNTY
INDEFINITE BOUNDARY
1 335 000 FEET
1 315 000 FEET
(Joins sheet 11)
(Joins sheet 13)
(Joins sheet 21)
Hog Creek
Otter Creek
CENTRAL OF GEORGIA
water
135
221
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
AoA
Ba
BbB
CeB2
CnA
CnB
DoB
FsB
KJ
Le
Pd
Pe
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Sa
StA
Su
TfA
TfB

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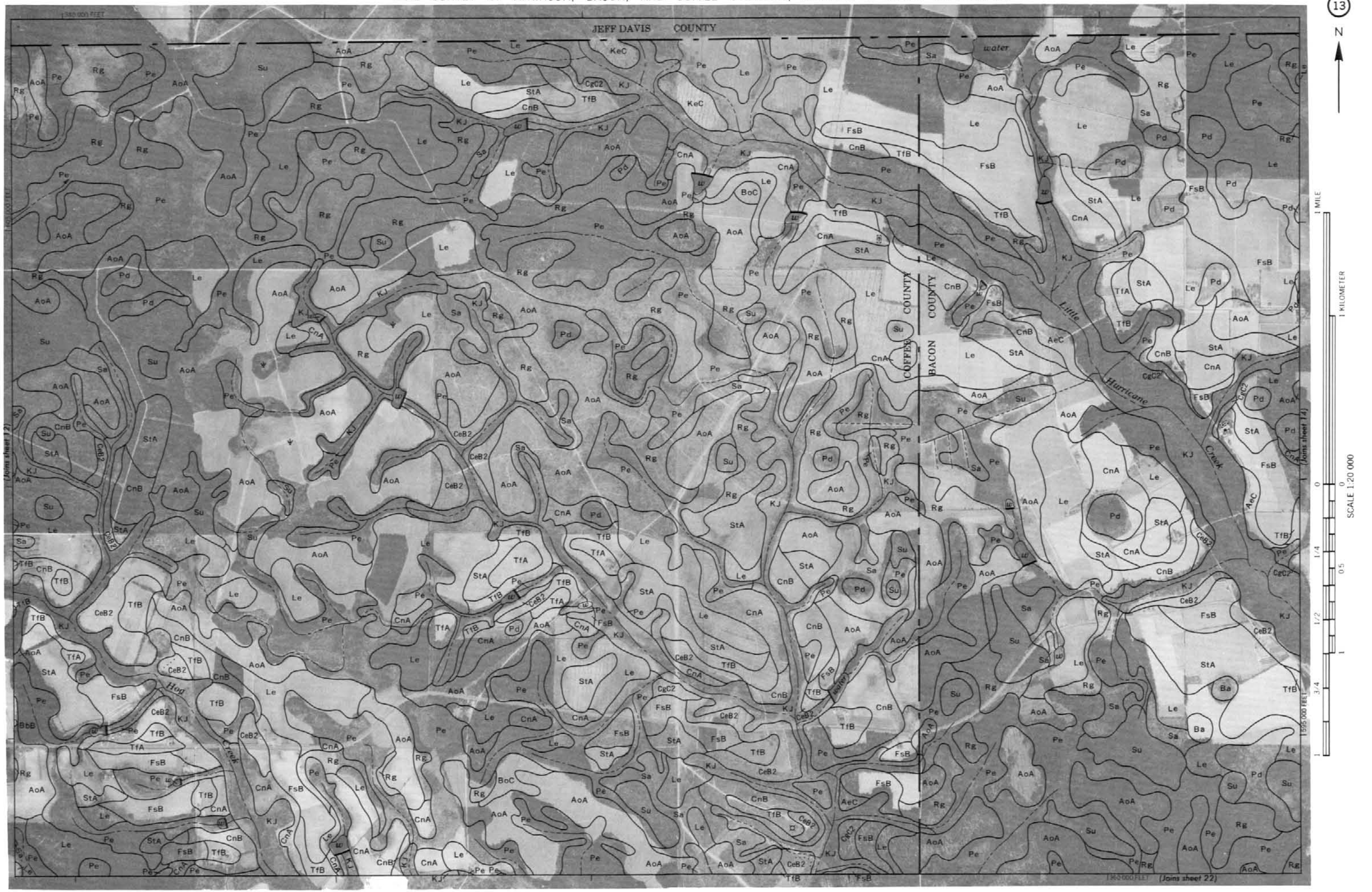

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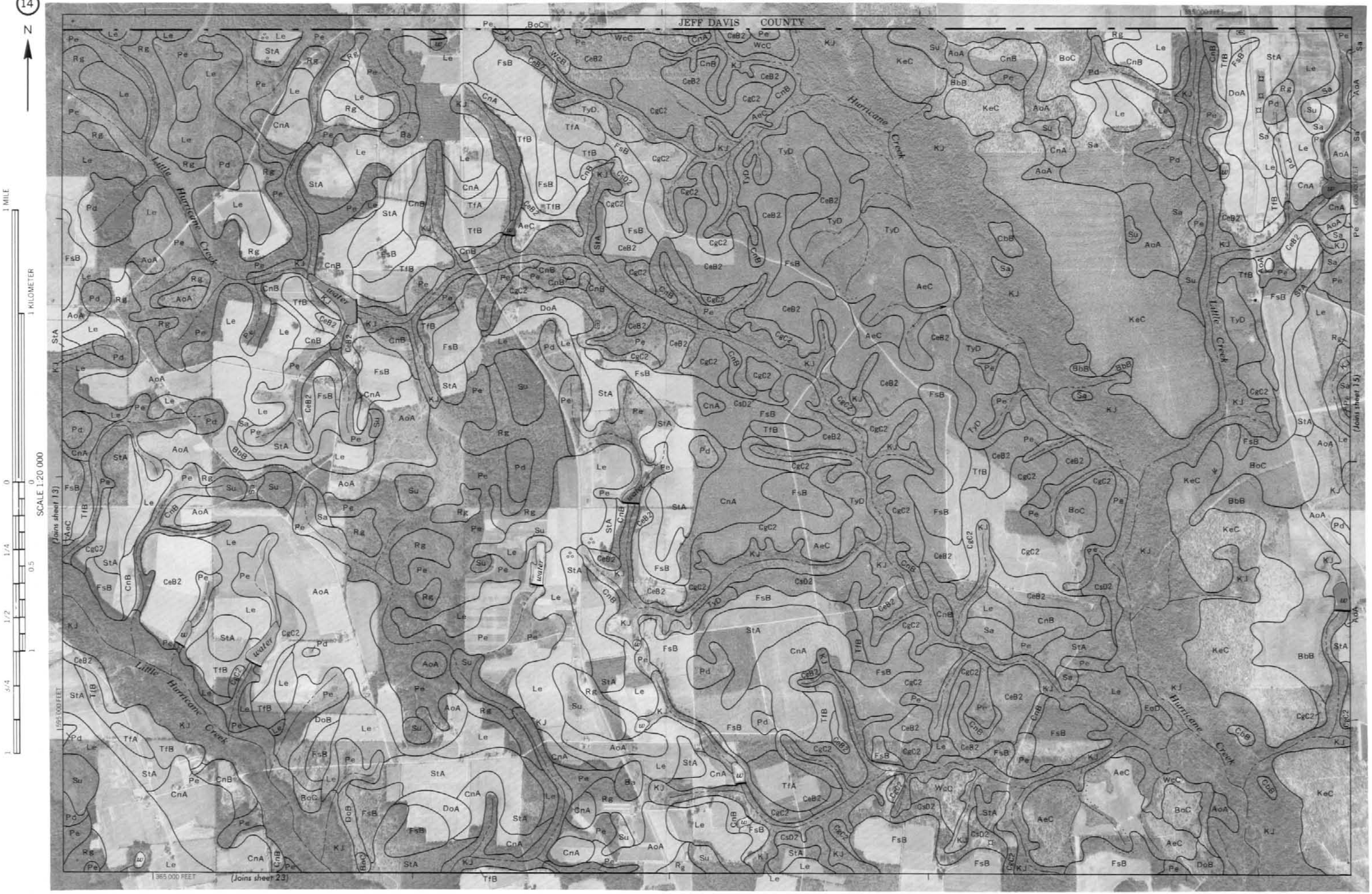
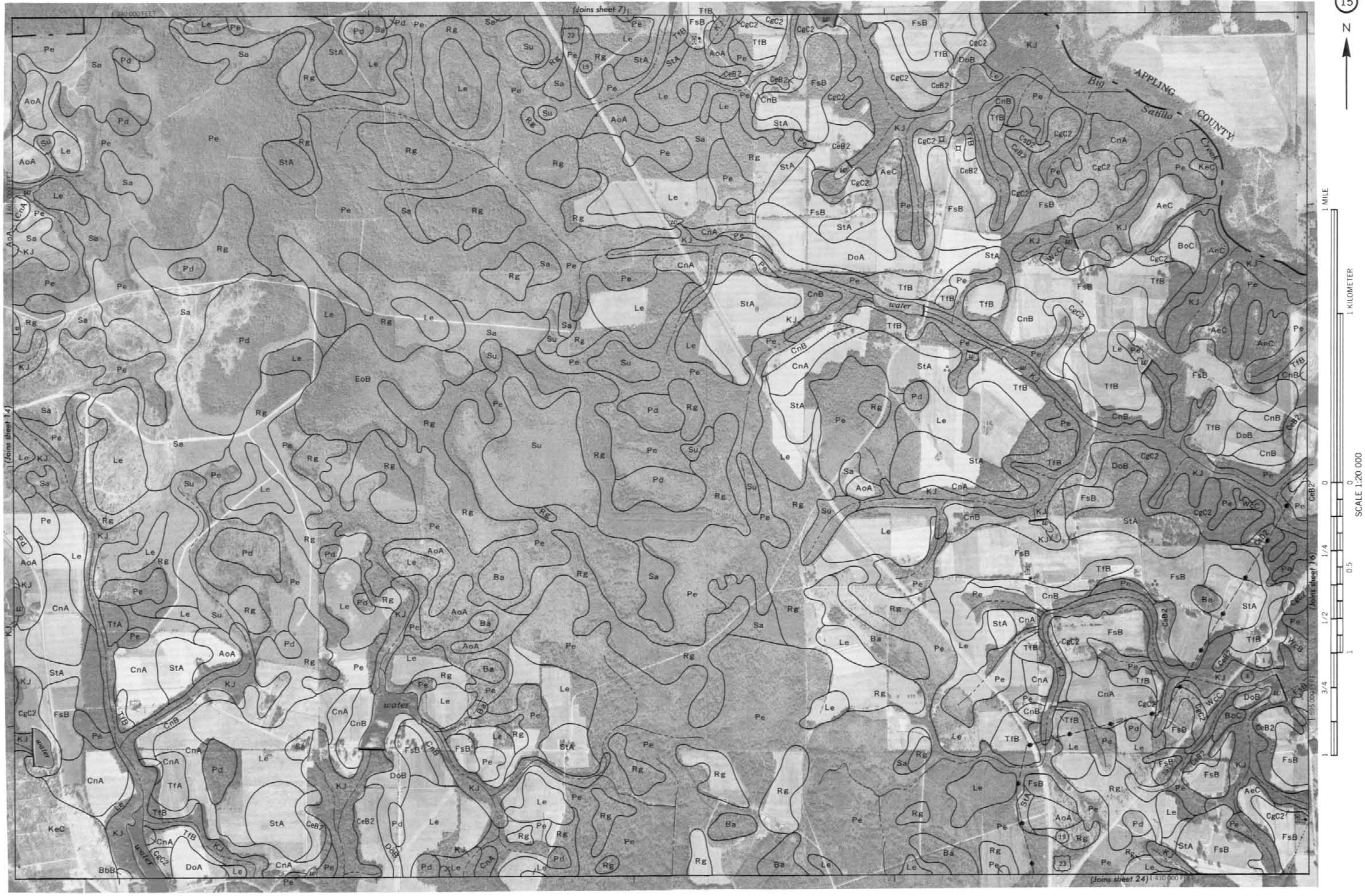


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 15



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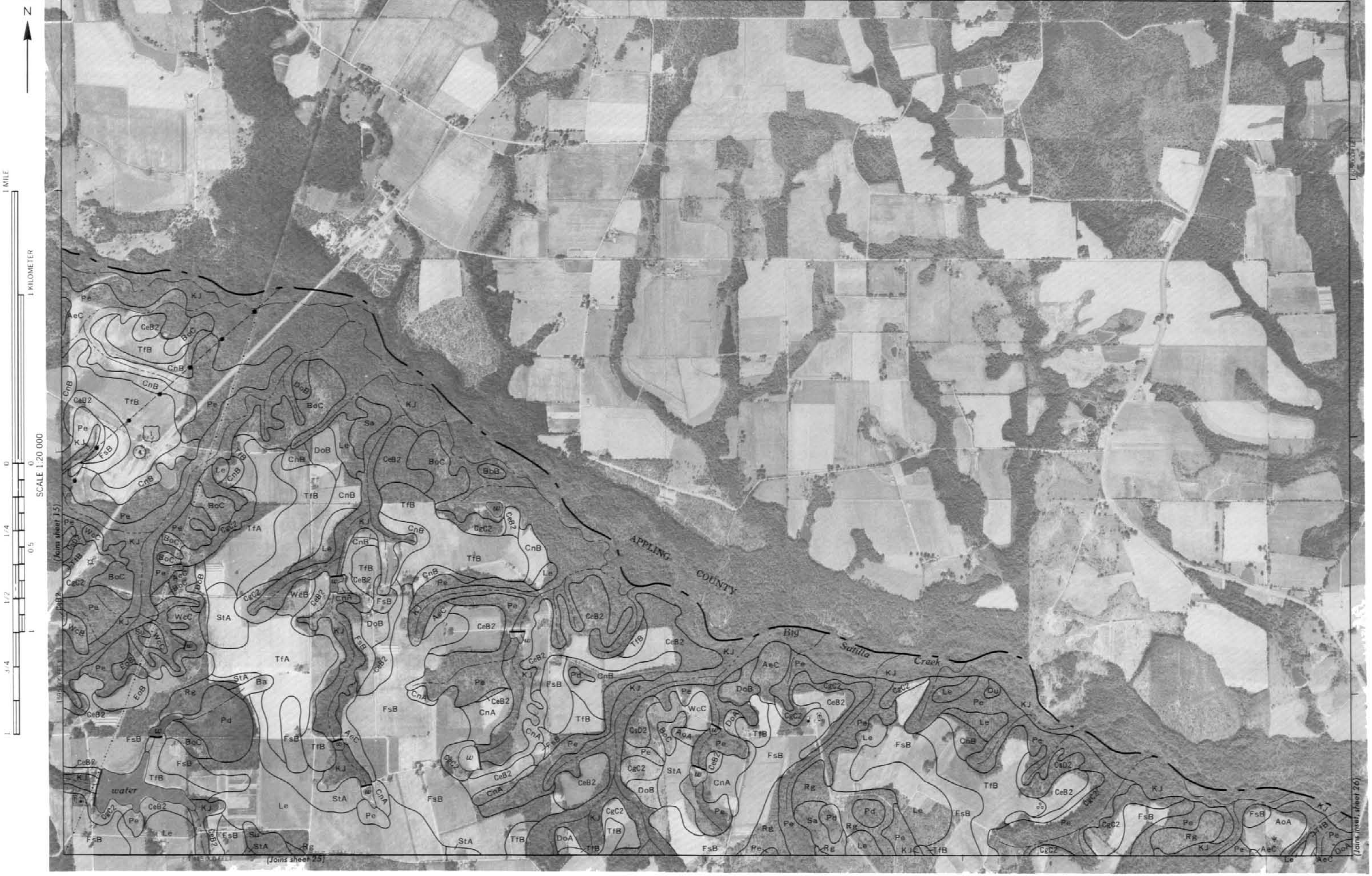

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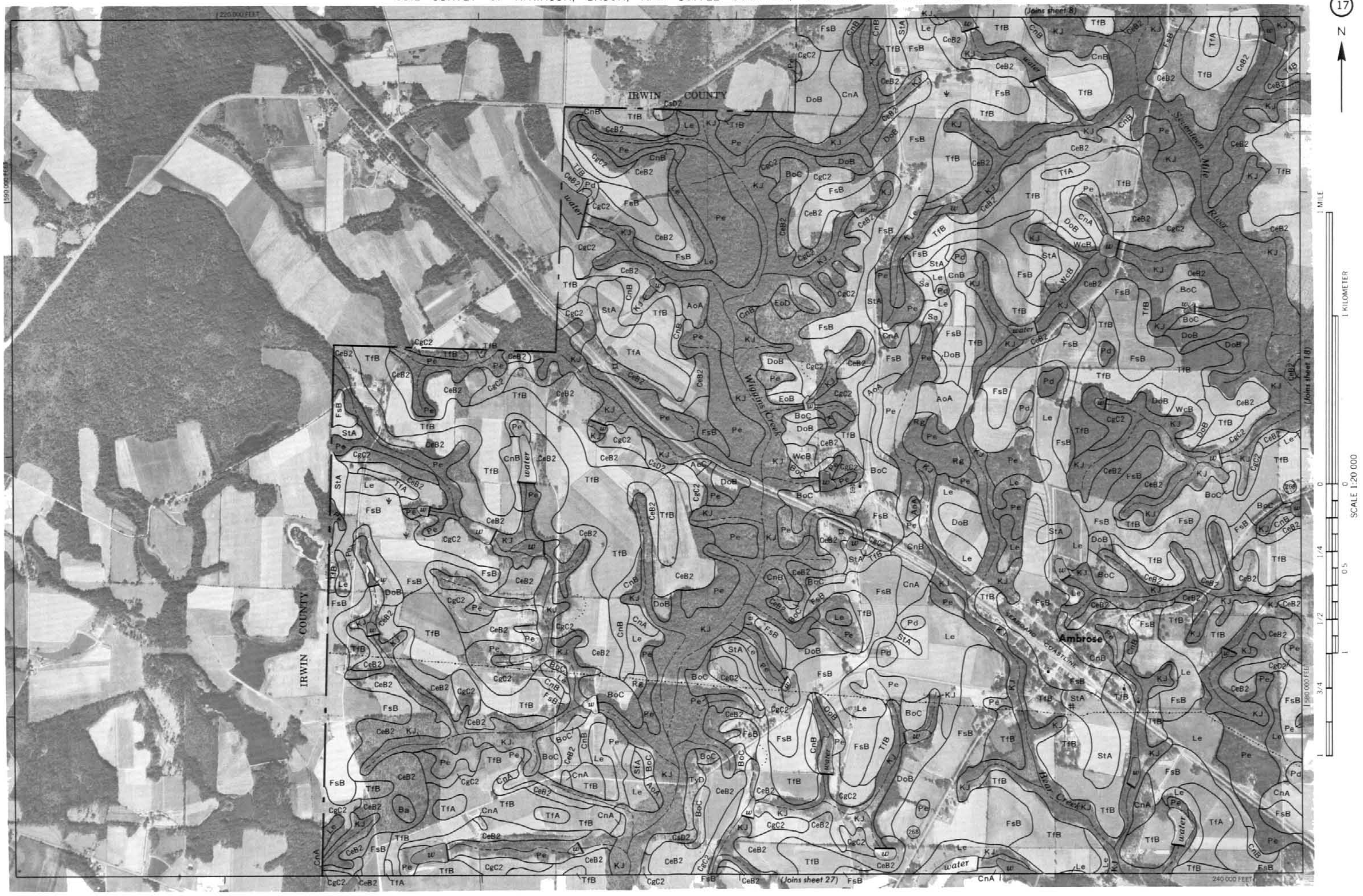
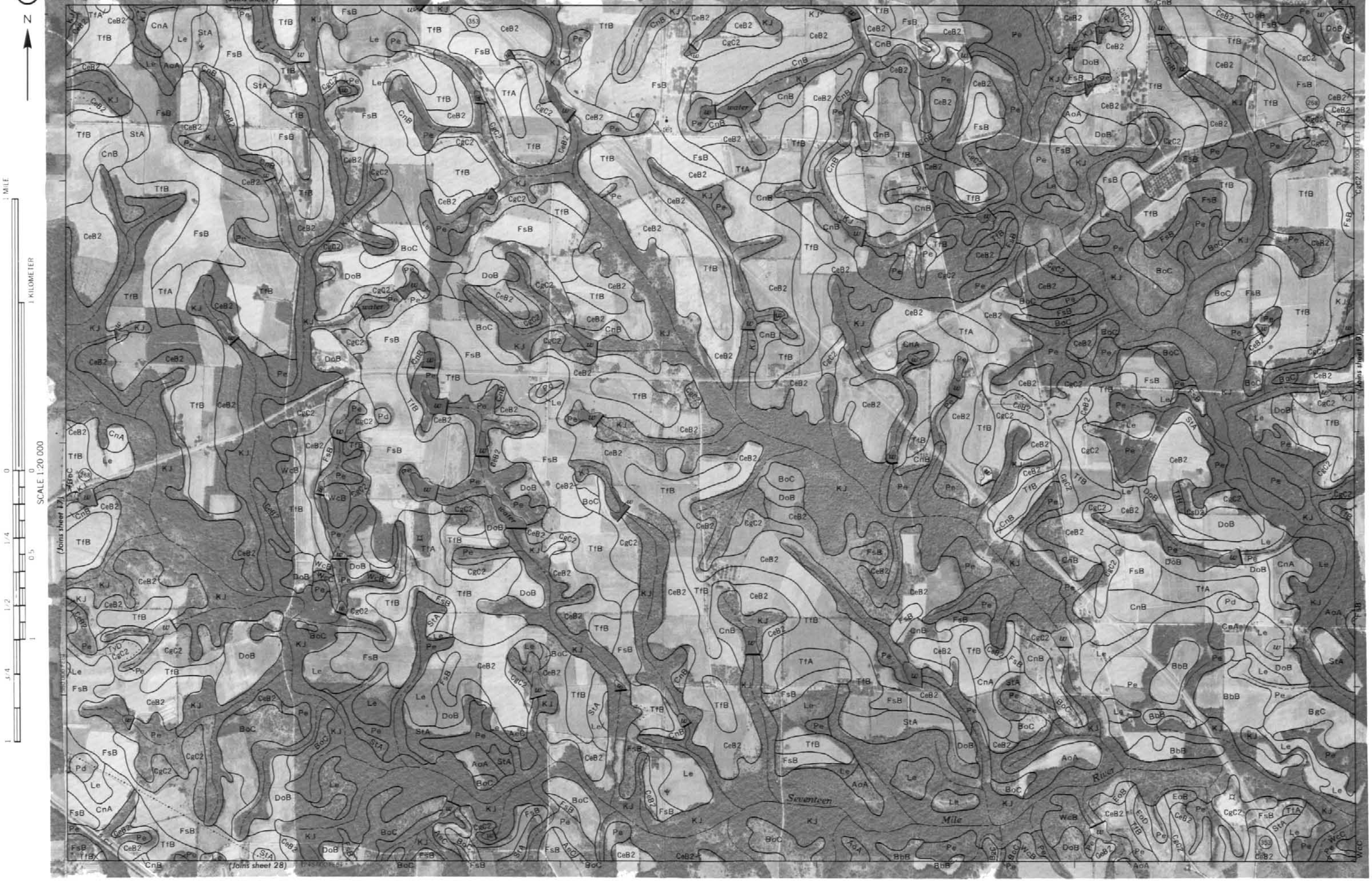
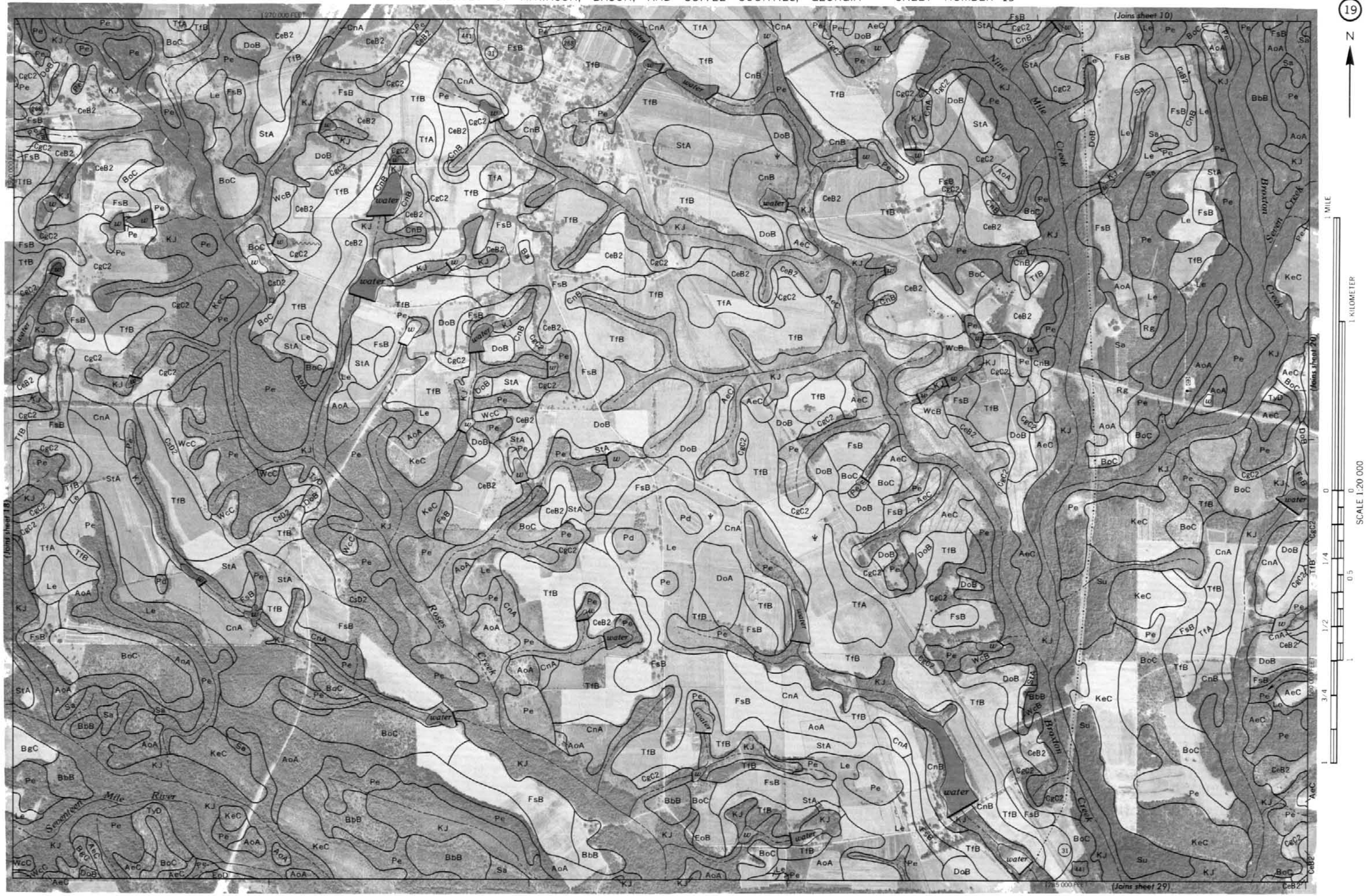


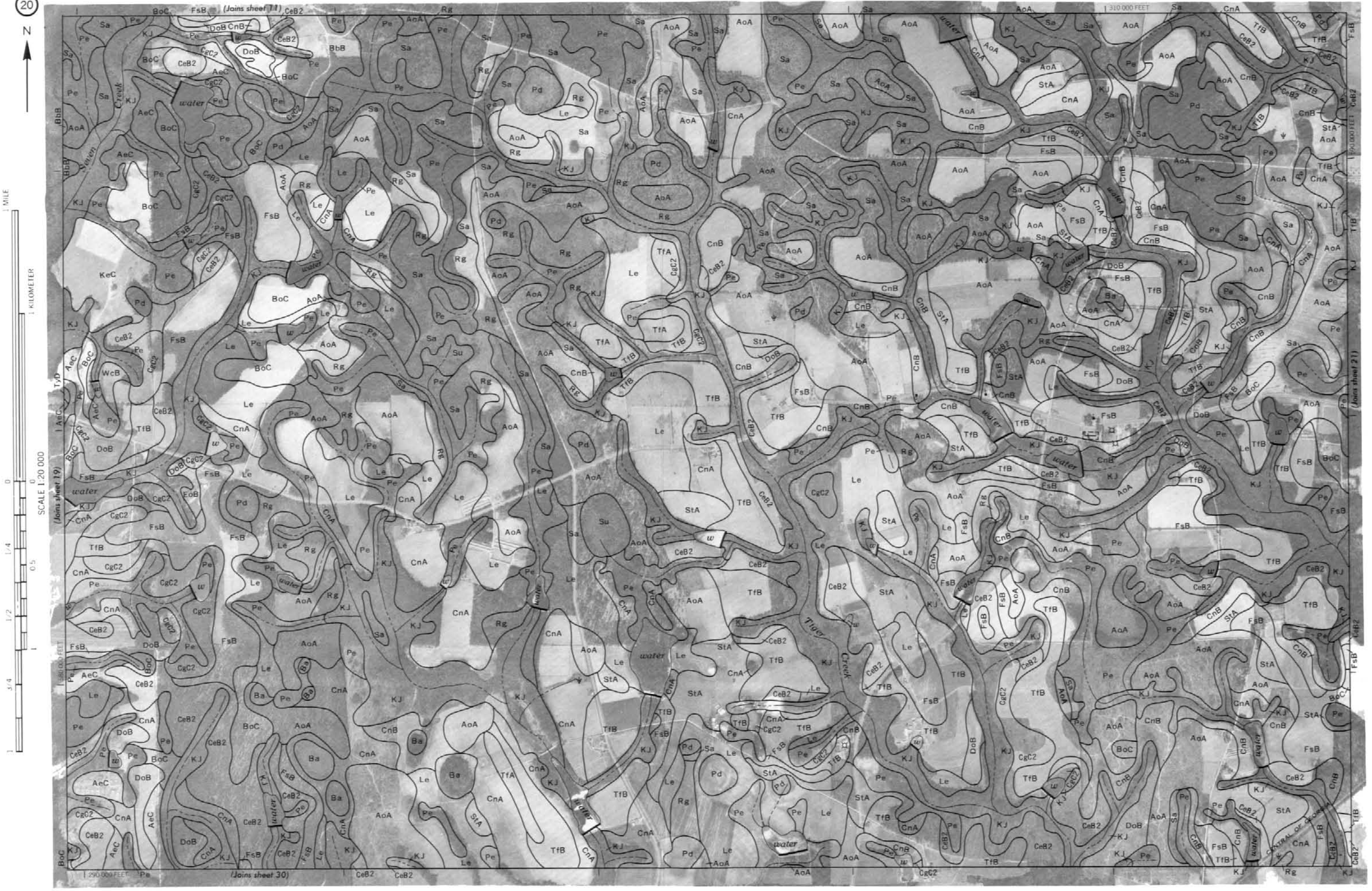

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 9)
(Joins sheet 17)
(Joins sheet 19)
(Joins sheet 28)
Seventeen
Mile
River
water
353
268
w
KJ
Pe
TfB
TfA
FsB
CeB2
CgC2
CnB
CnA
Le
StA
AoA
BoC
DoB
WcB
Pd
EoB
EoD
BbB
BgC
TyD

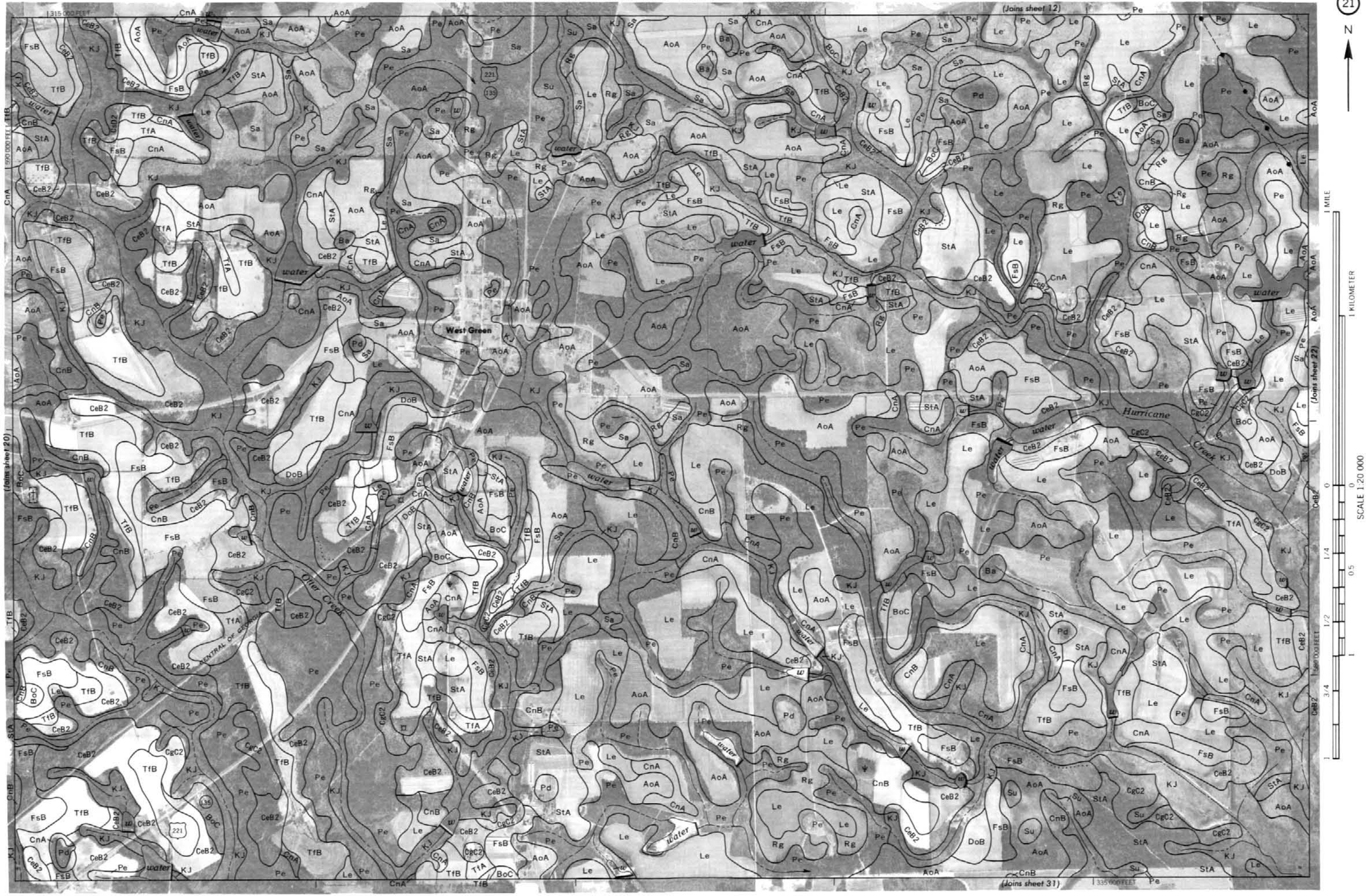
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 19



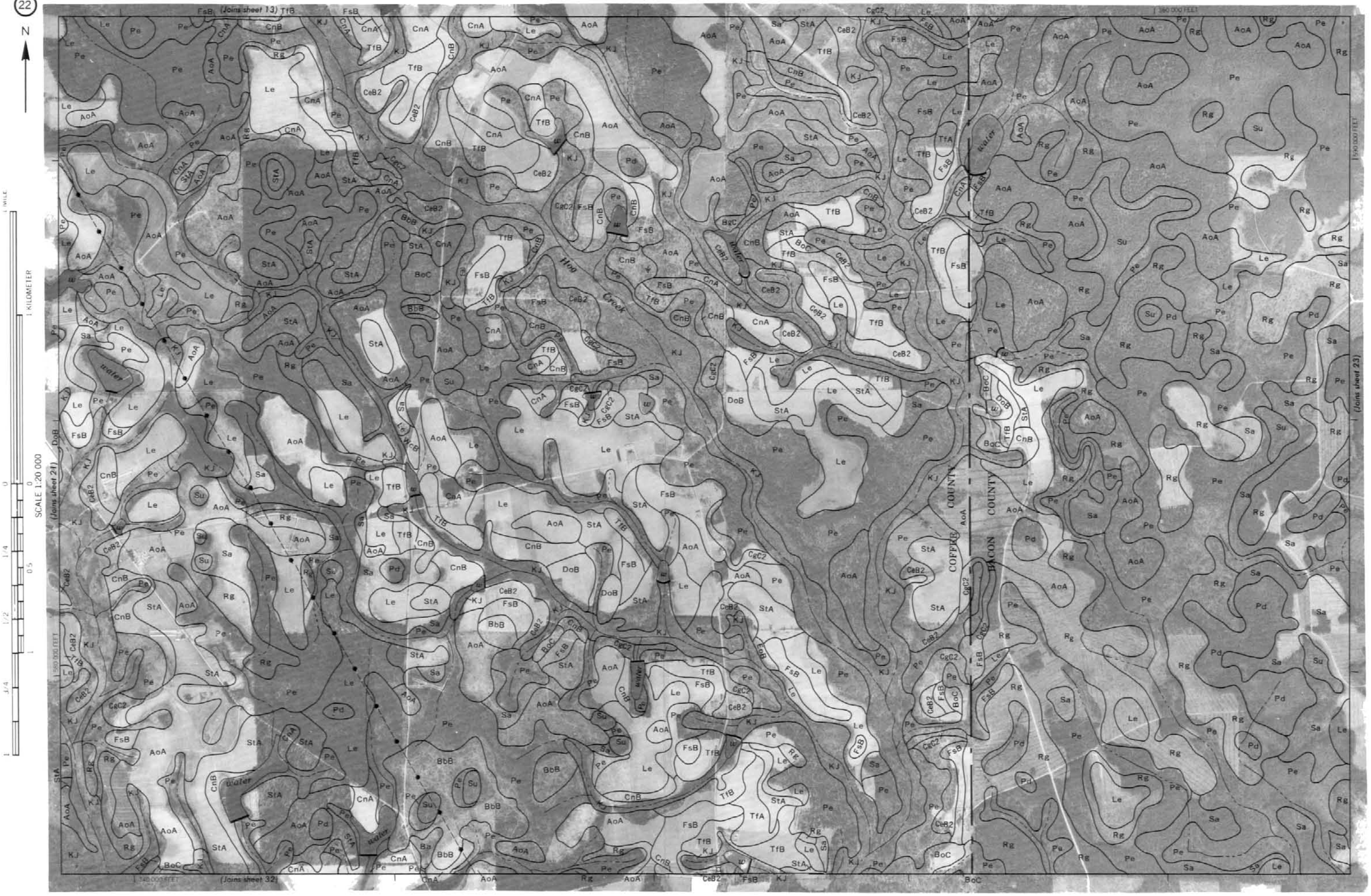
⑳

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 20

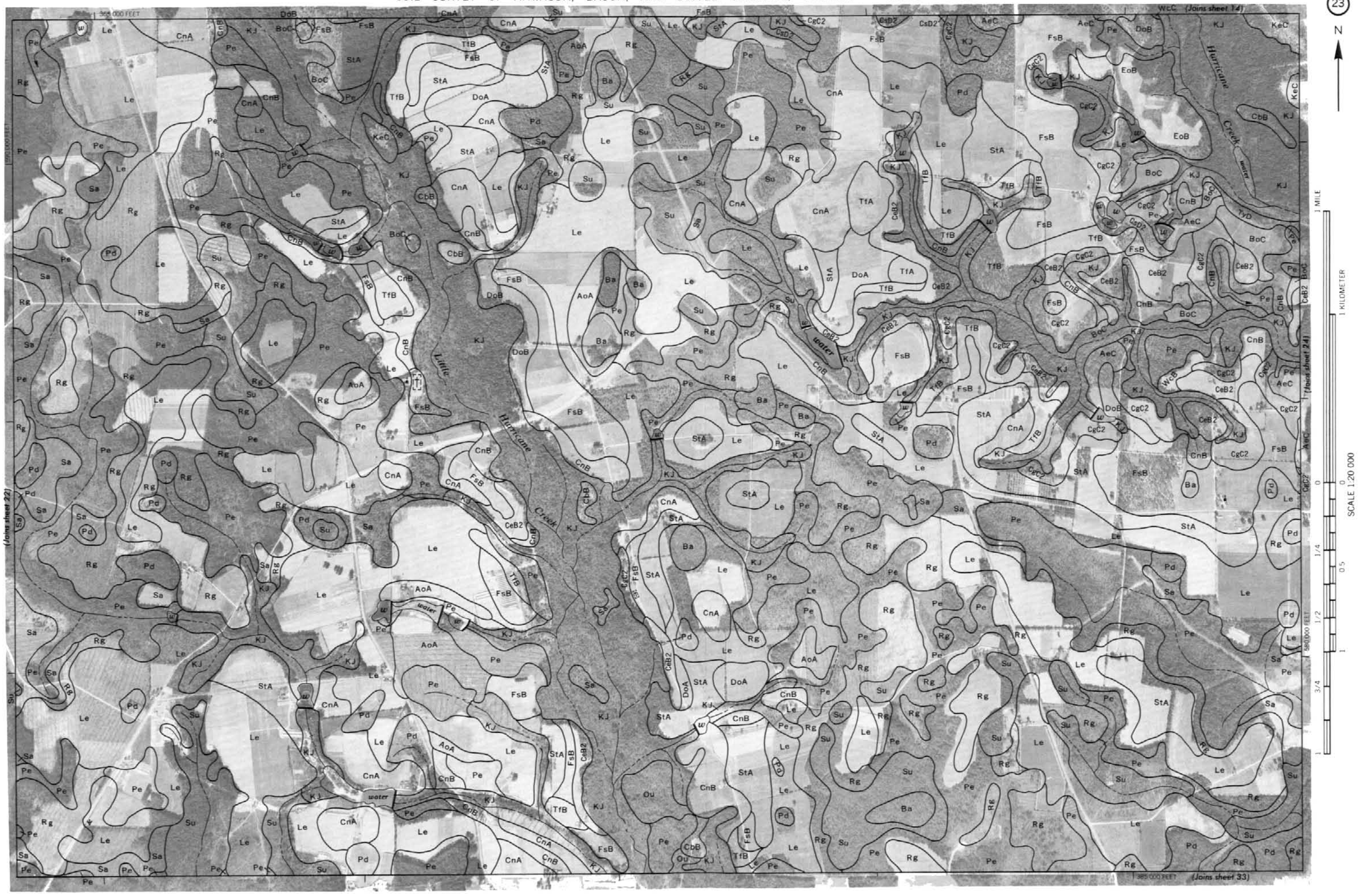



(Joins sheet 12)
(Joins sheet 22)
(Joins sheet 20)
(Joins sheet 31)
West Green
Hurricane Creek
Otter Creek
Central of Georgia
315 000 FEET
335 000 FEET
590 000 FEET
560 000 FEET
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5

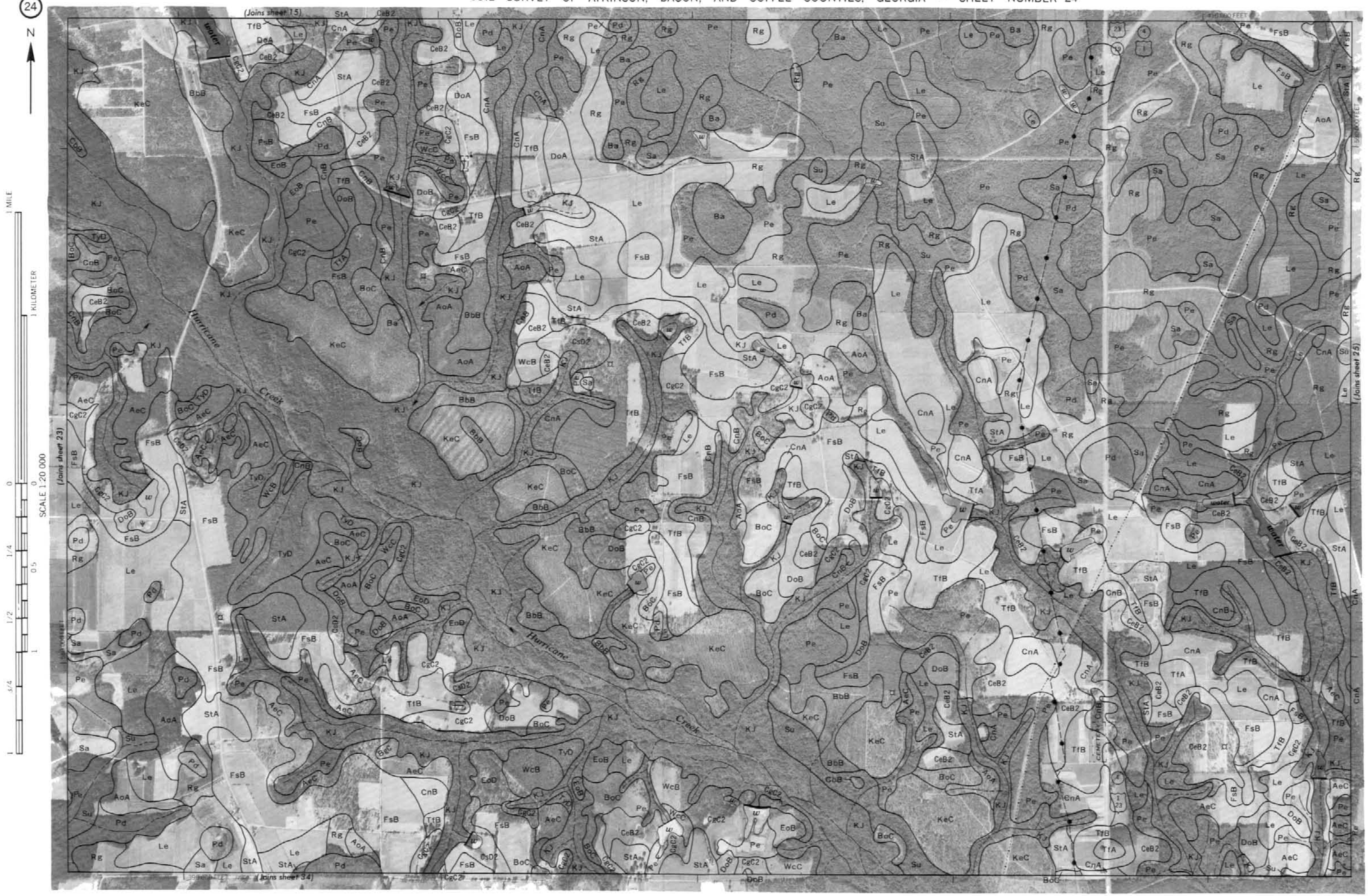
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 22



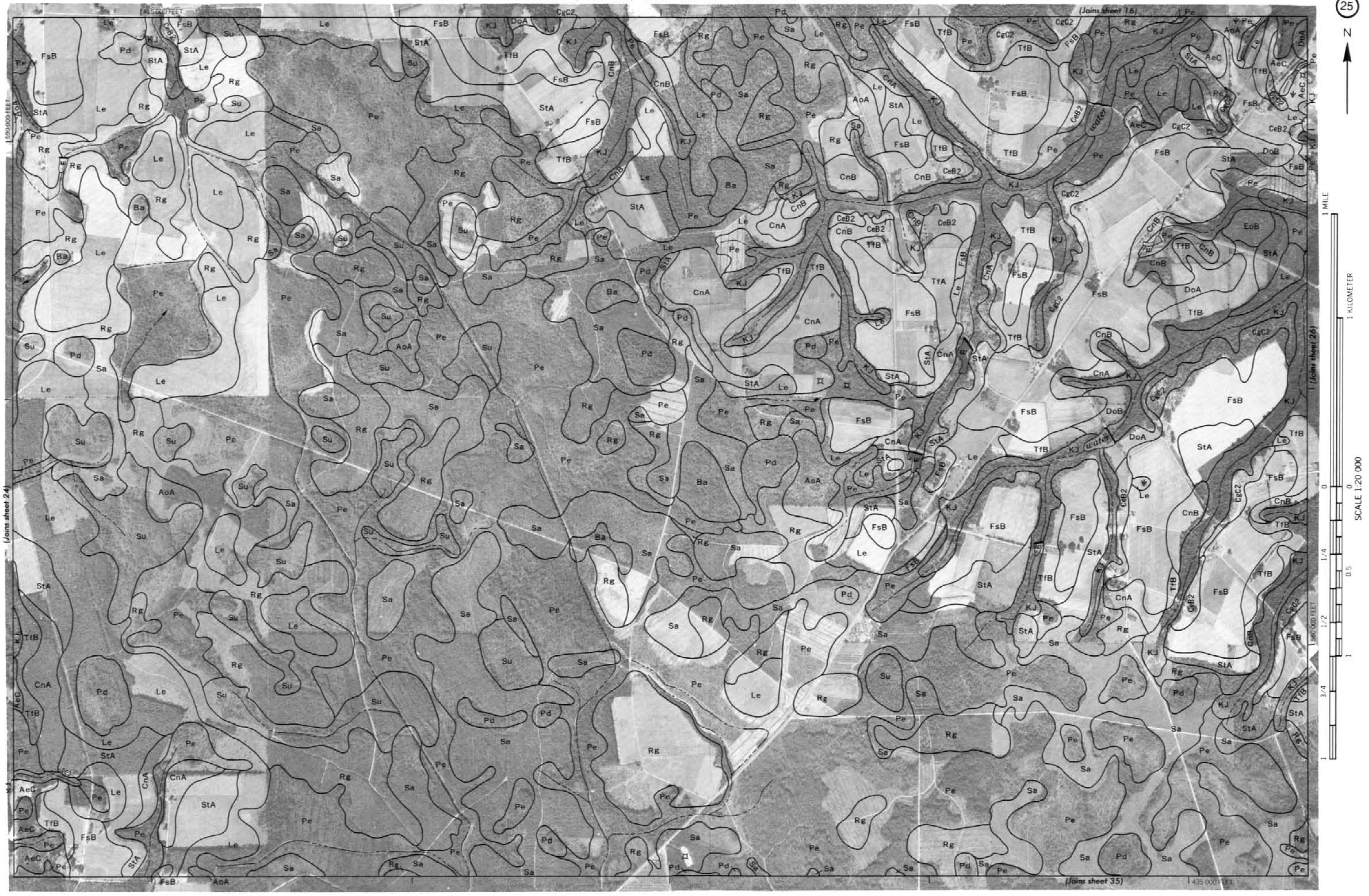
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 23

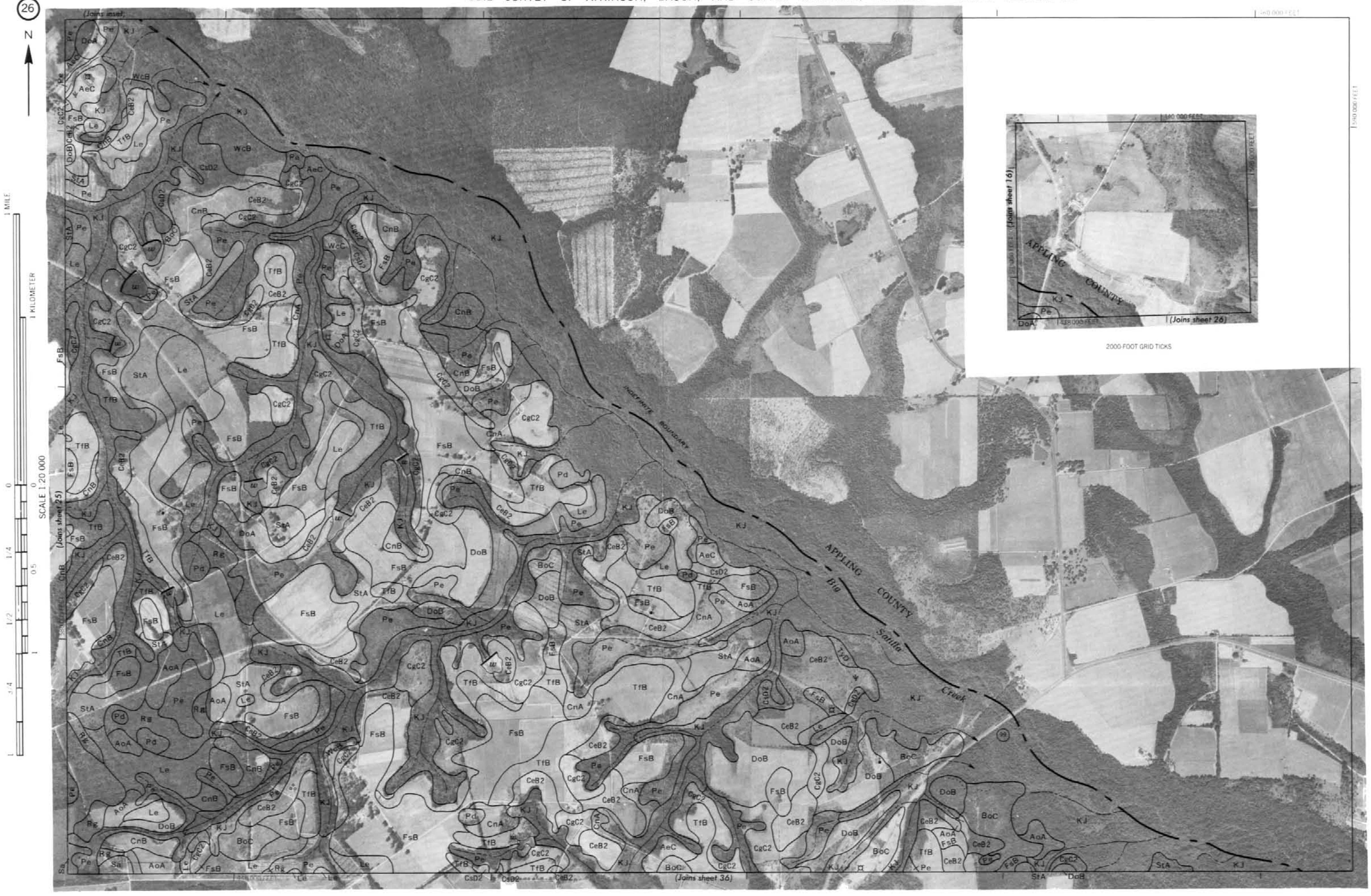


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 24

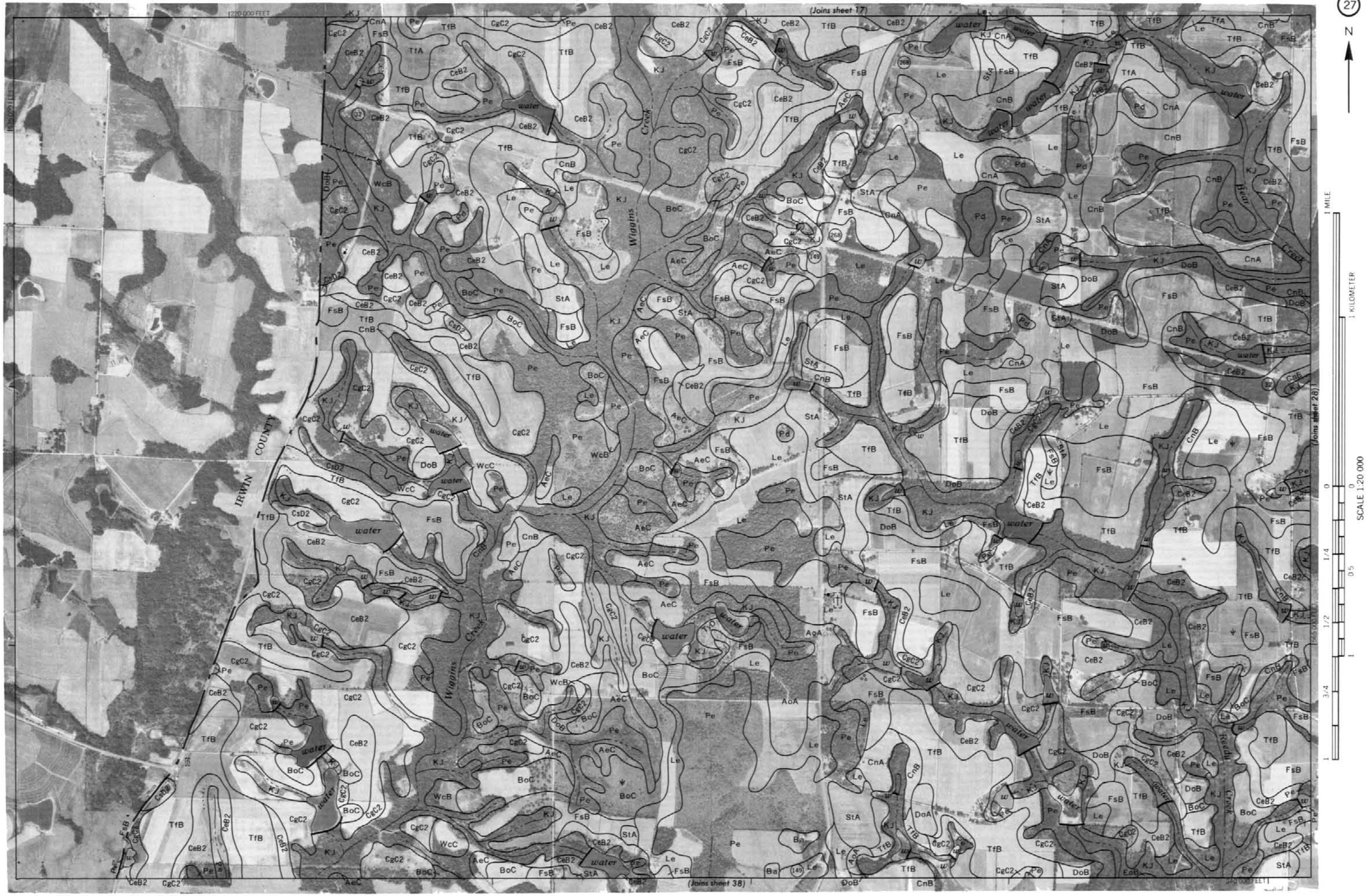


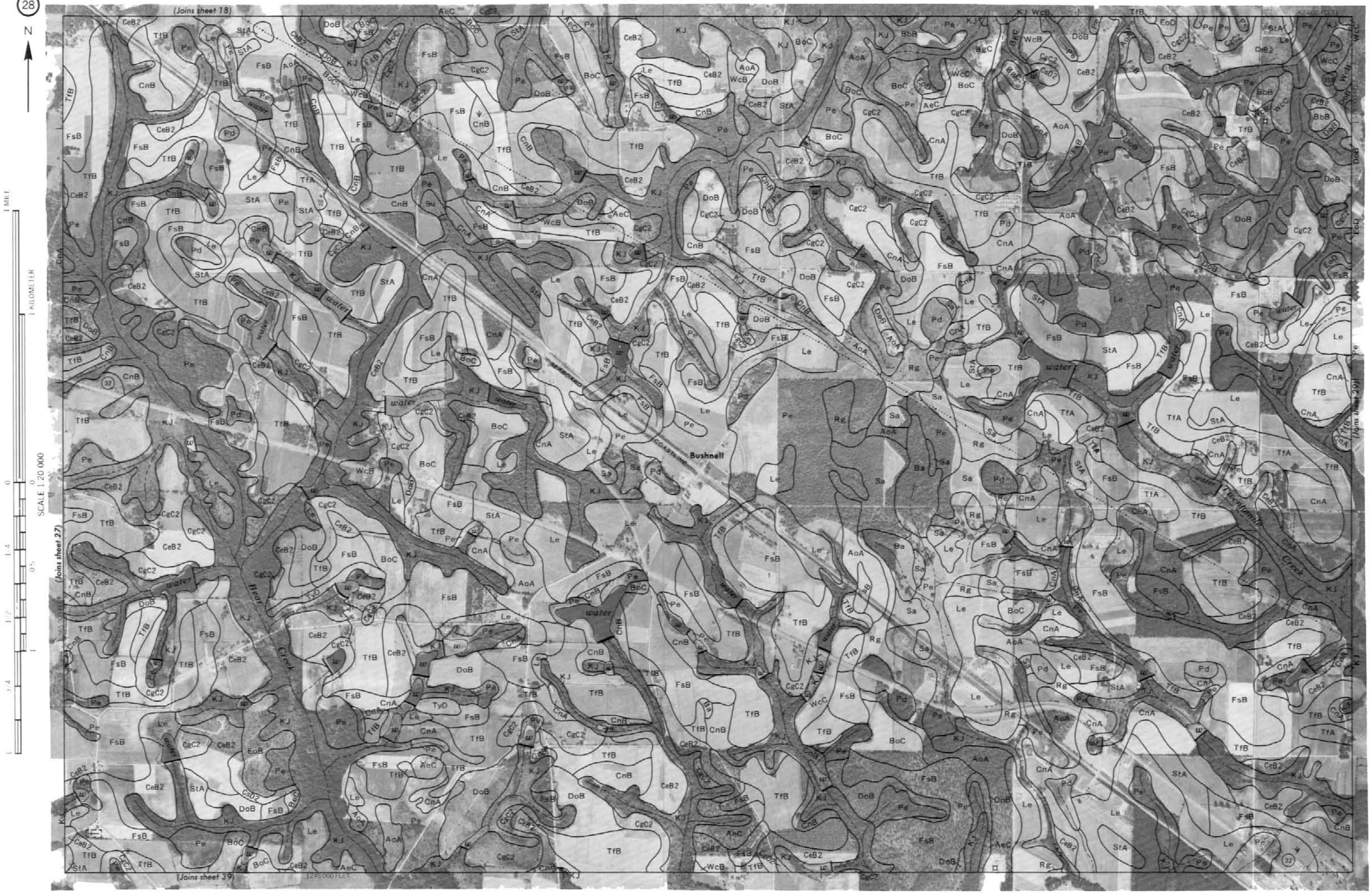
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 25



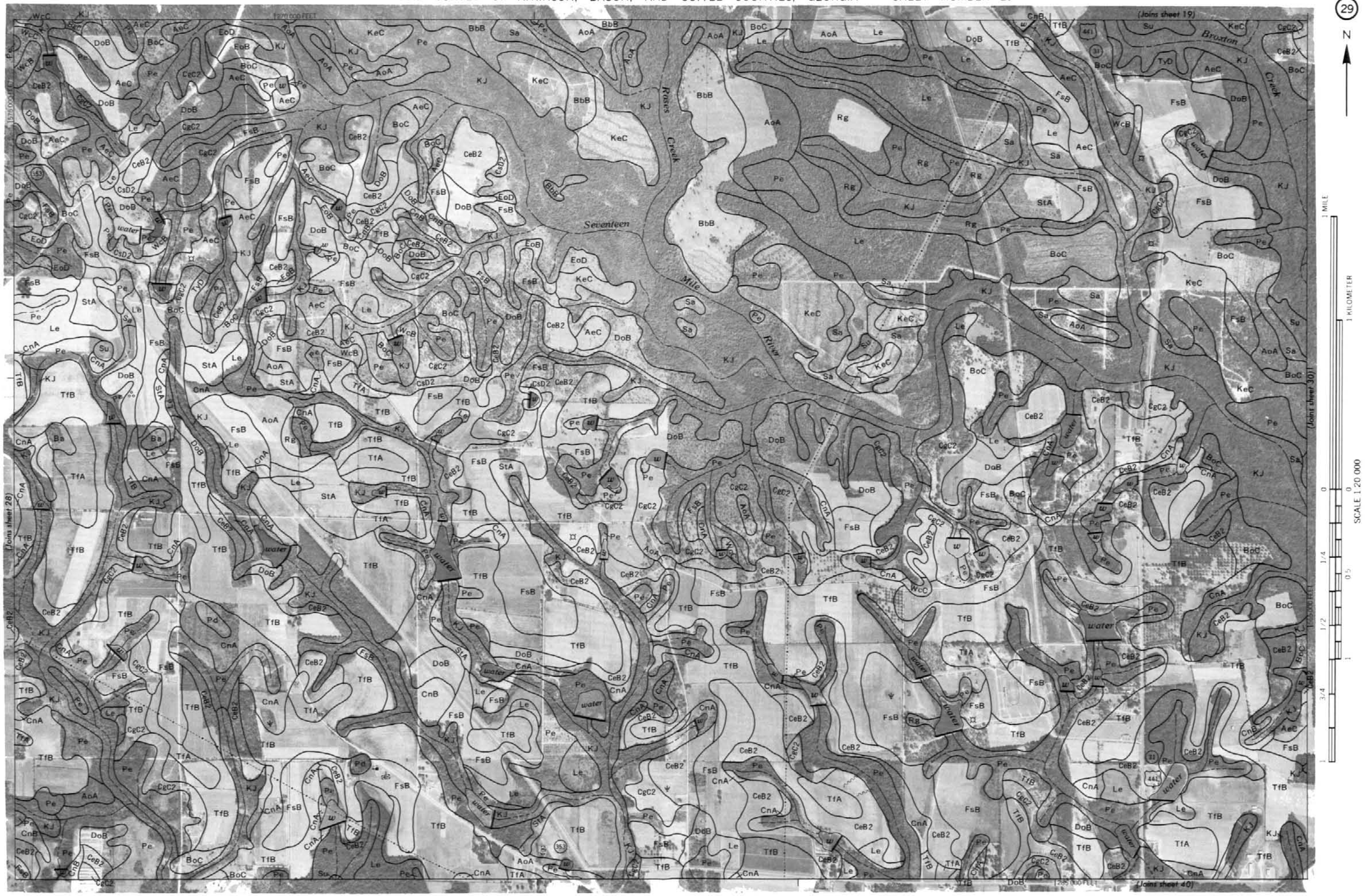

26
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
(Joins inset)
(Joins sheet 25)
(Joins sheet 36)
(Joins sheet 16)
(Joins sheet 26)
INDEFINITE BOUNDARY
APPLING COUNTY
Big Satilla Creek
2000-FOOT GRID TICKS
540 000 FEET
590 000 FEET
538 000 FEET

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 27

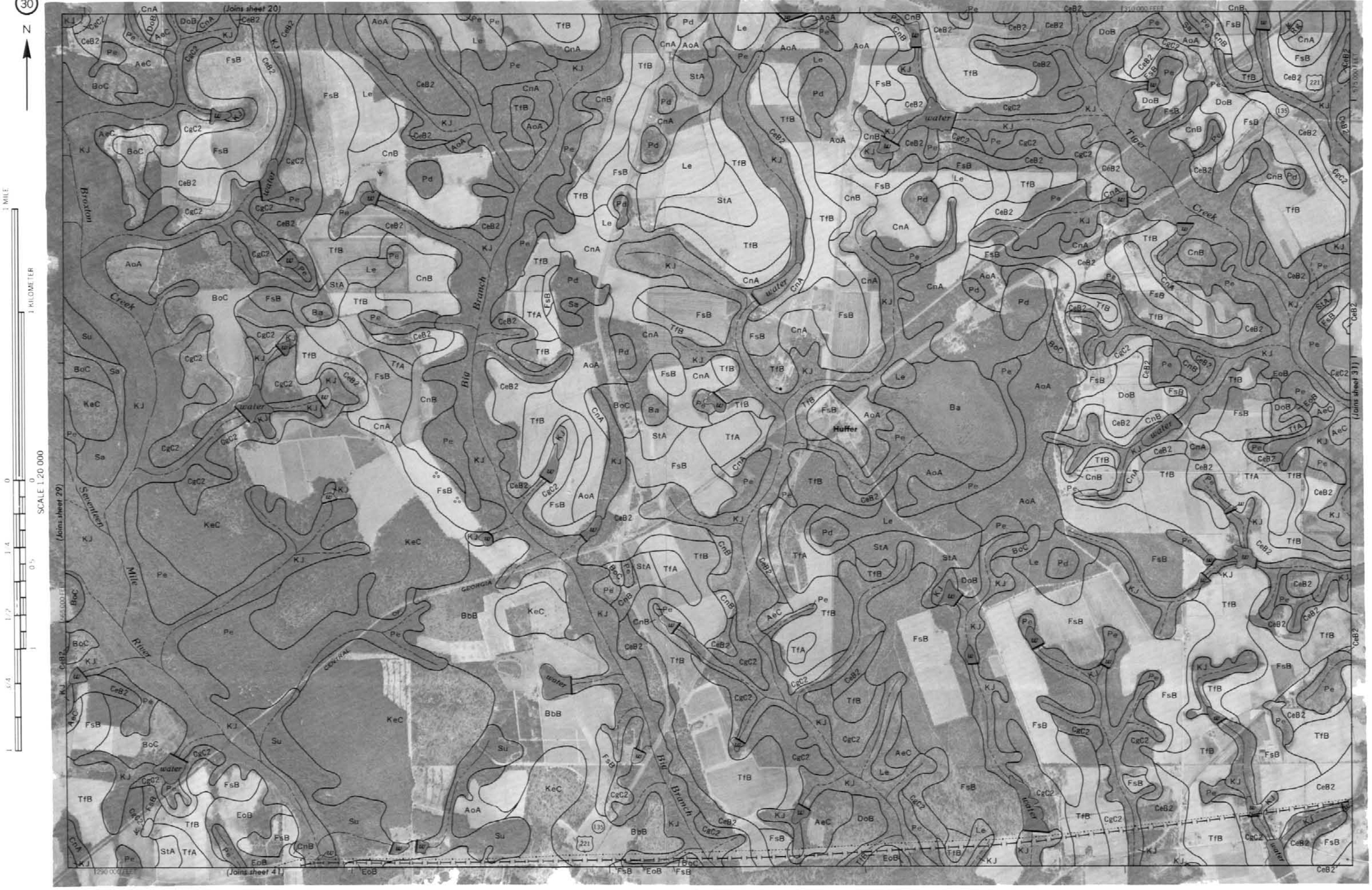



N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
(Joins sheet 18)
(Joins sheet 27)
(Joins sheet 29)
(Joins sheet 39)
Bear Creek
Creek
Bushnell
SEABOARD
COASTLINE
water
32
2 545 000 FEET

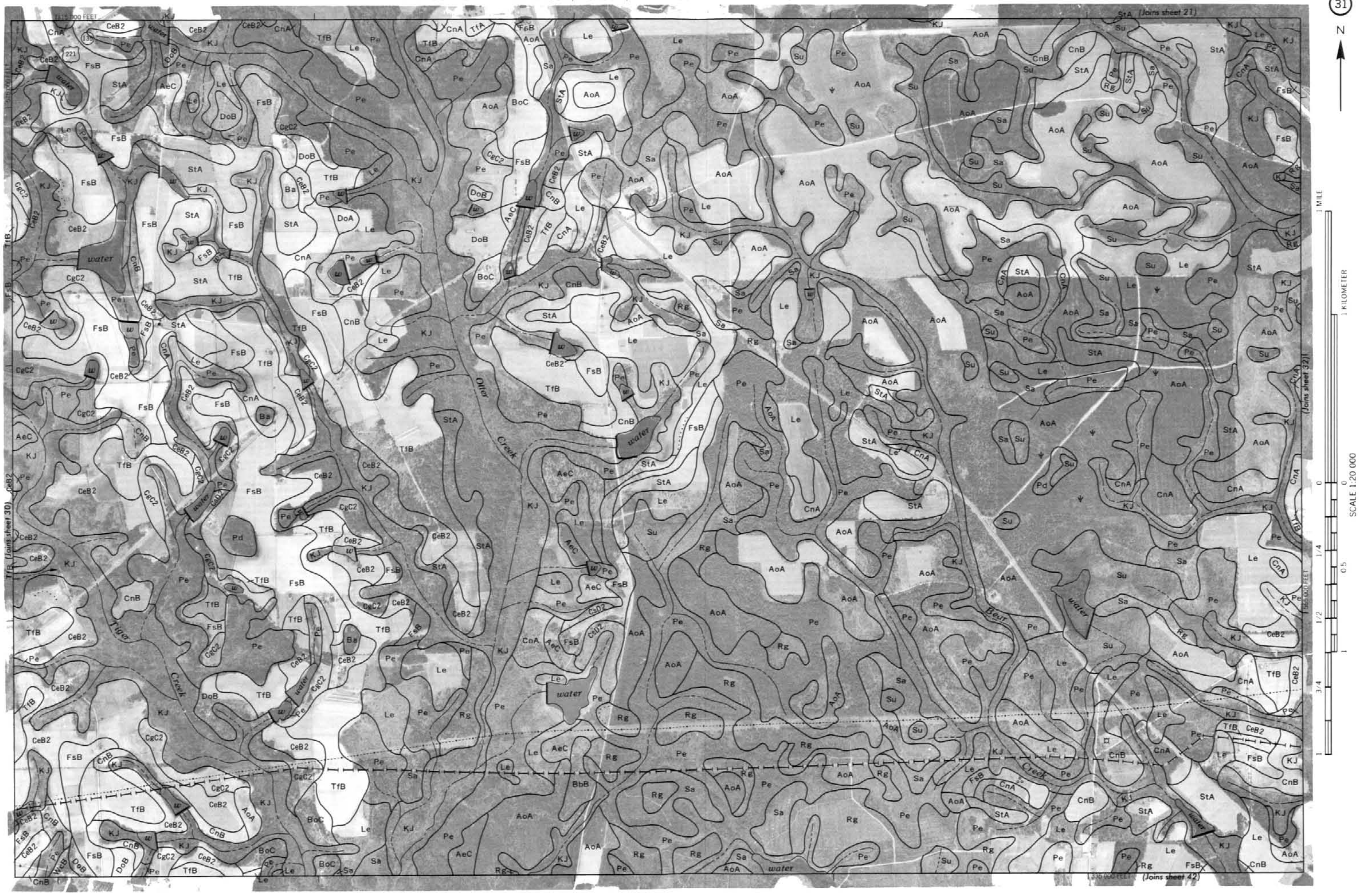
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 29



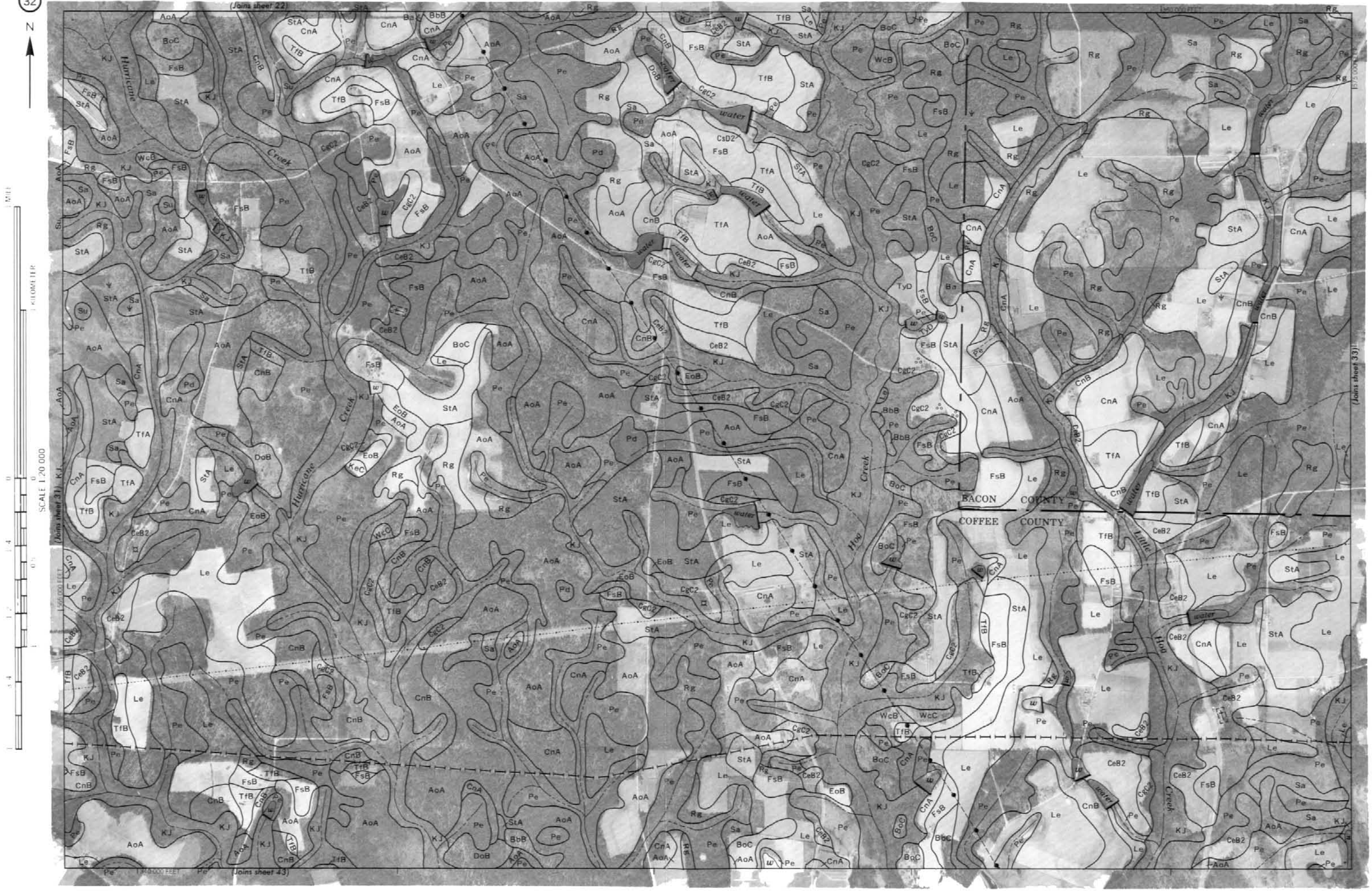
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 30

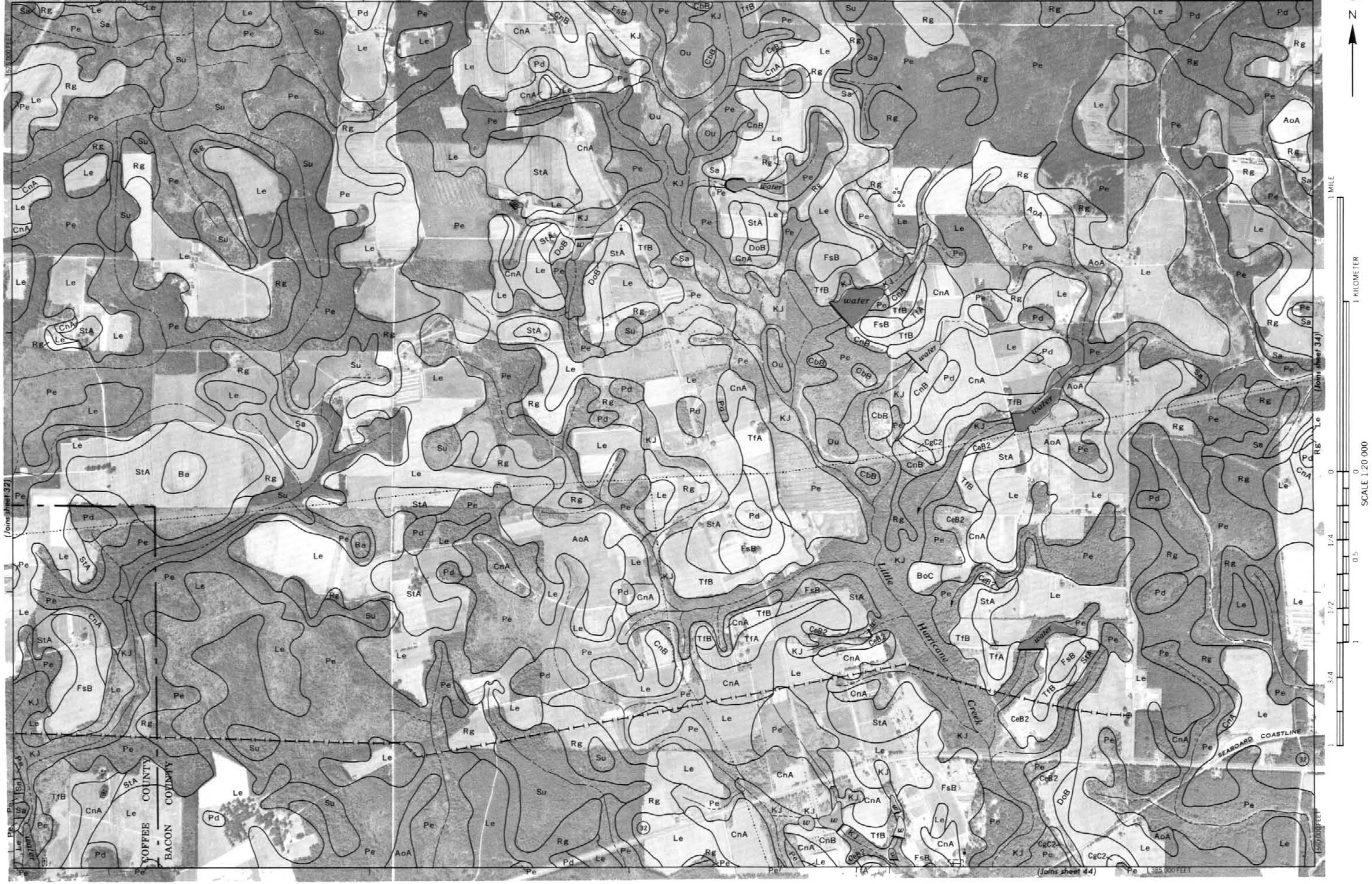


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 31

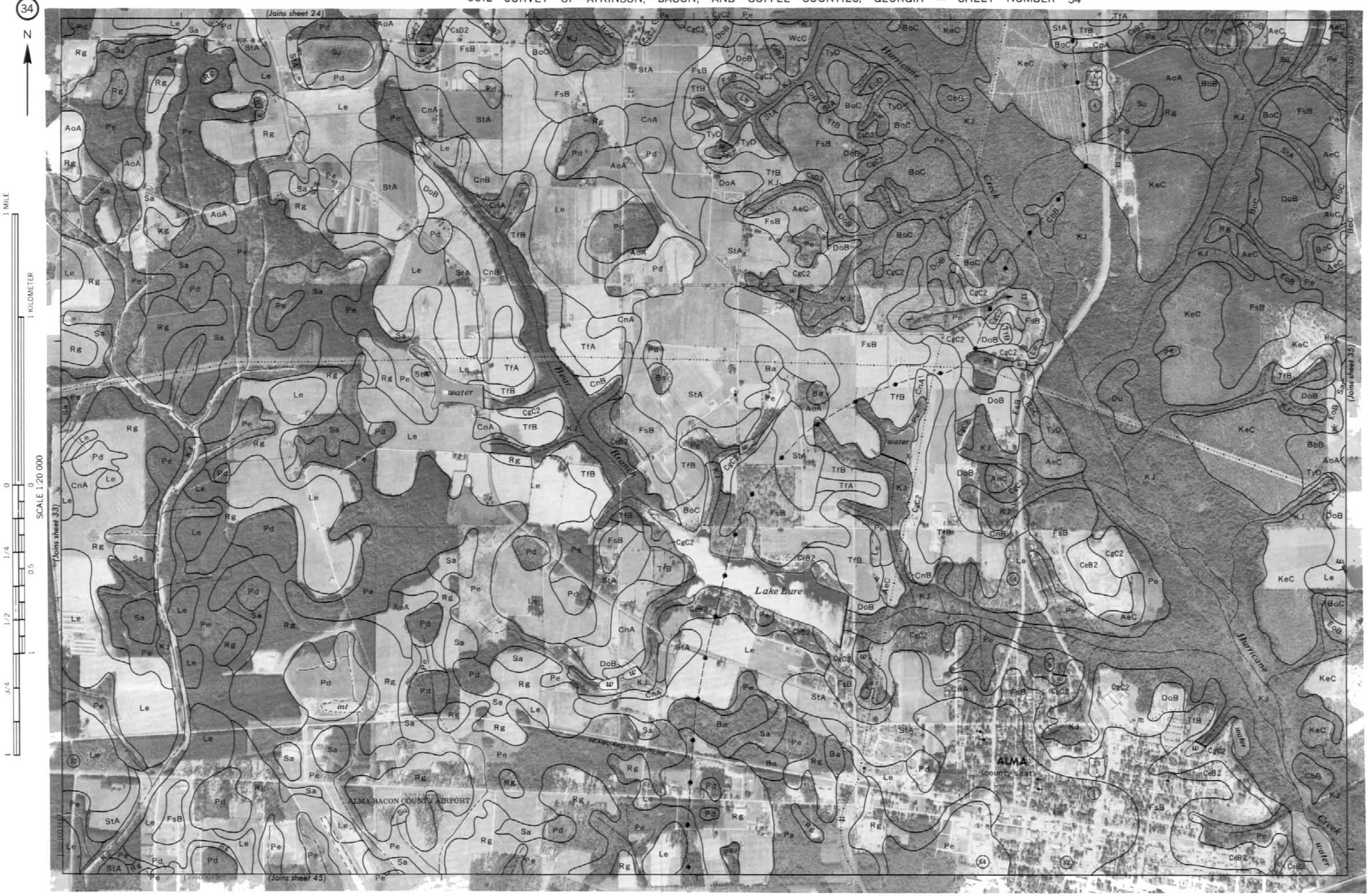


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 32

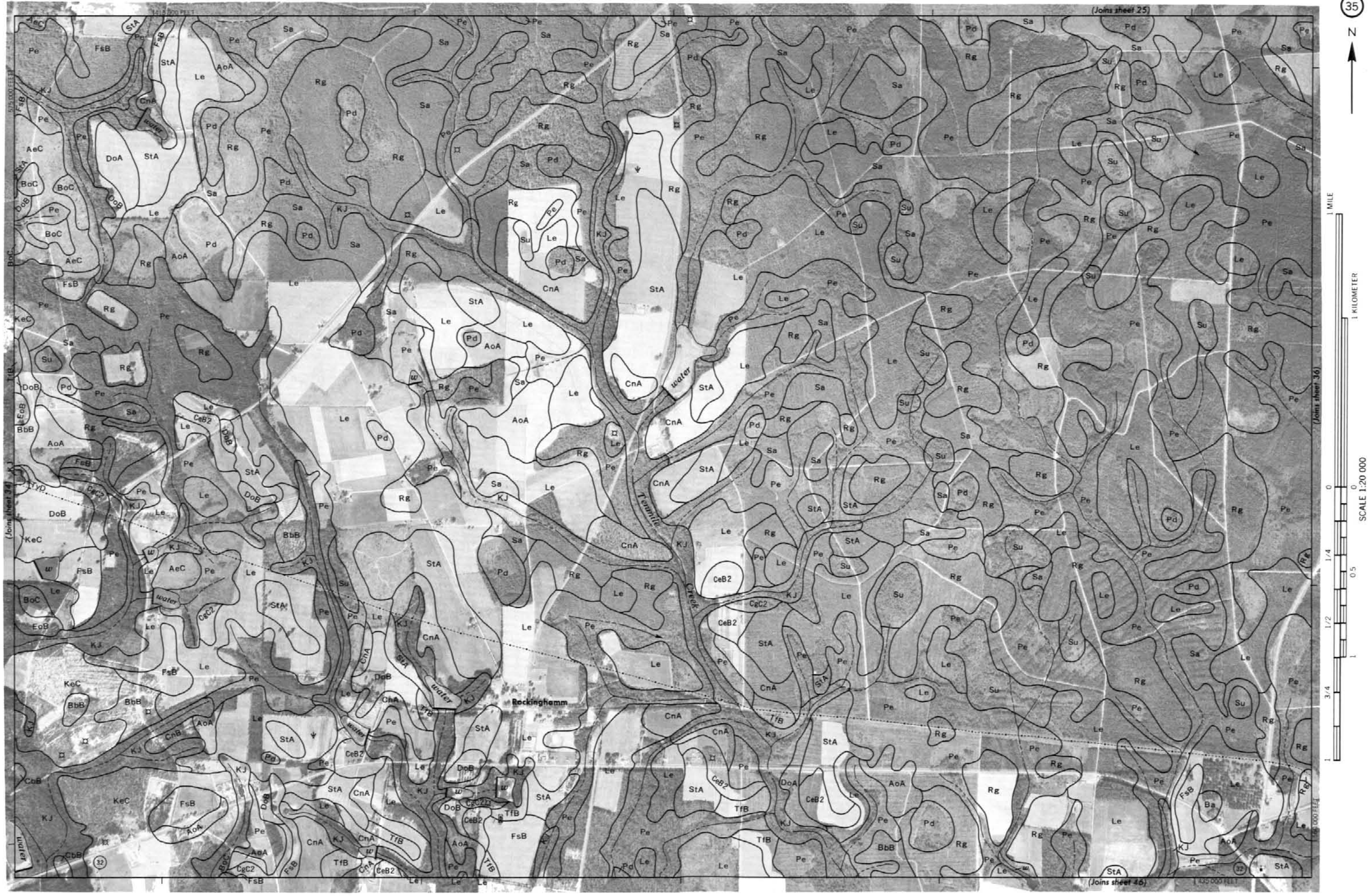


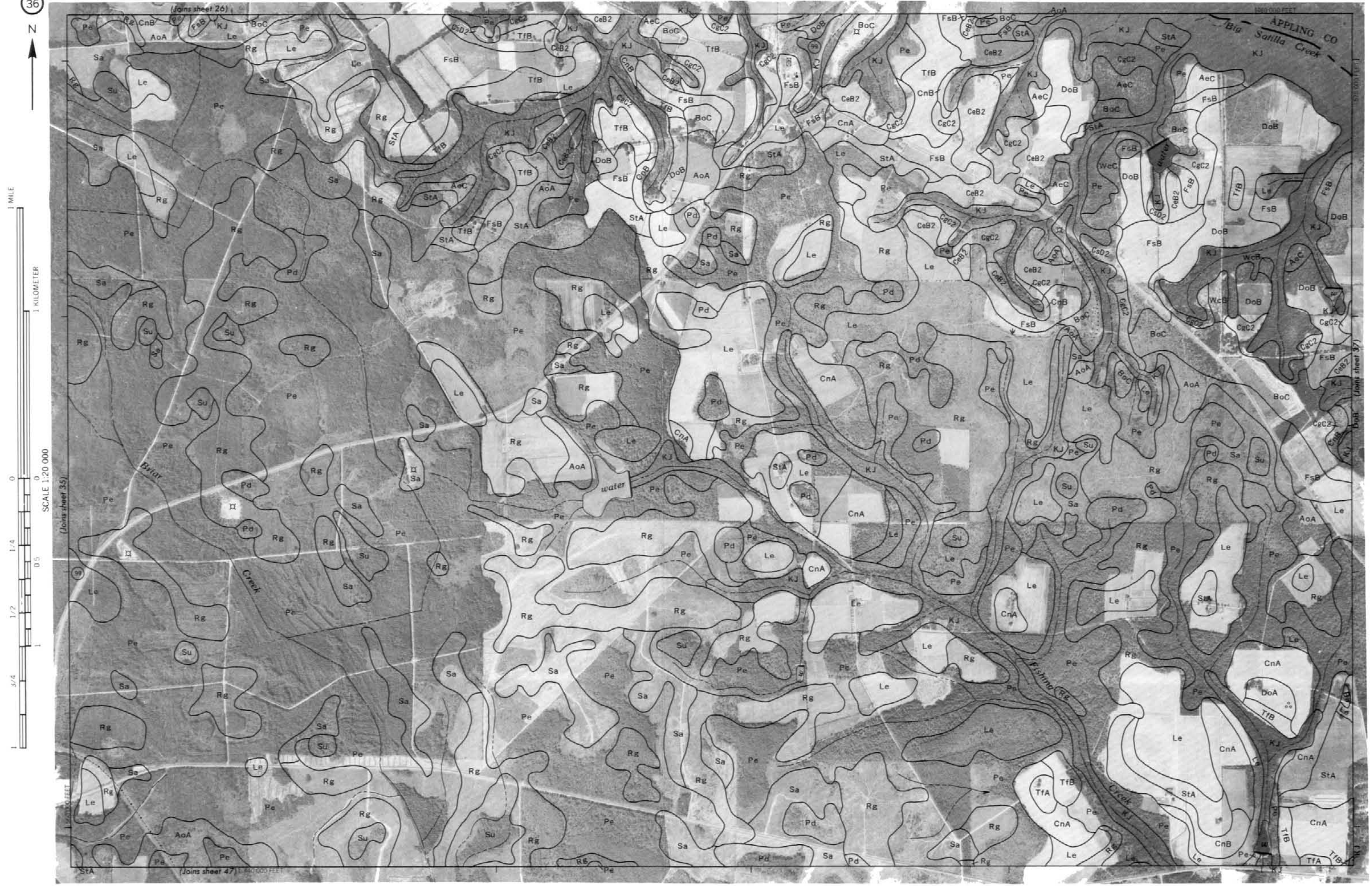

N
(Joins sheet 23)
(Joins sheet 34)
(Joins sheet 44)
(Joins sheet 32)
1 365 000 FEET
1 385 000 FEET
Little Hurricane Creek
water
SEABOARD COASTLINE
COFFEE COUNTY
BACON COUNTY
32
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5

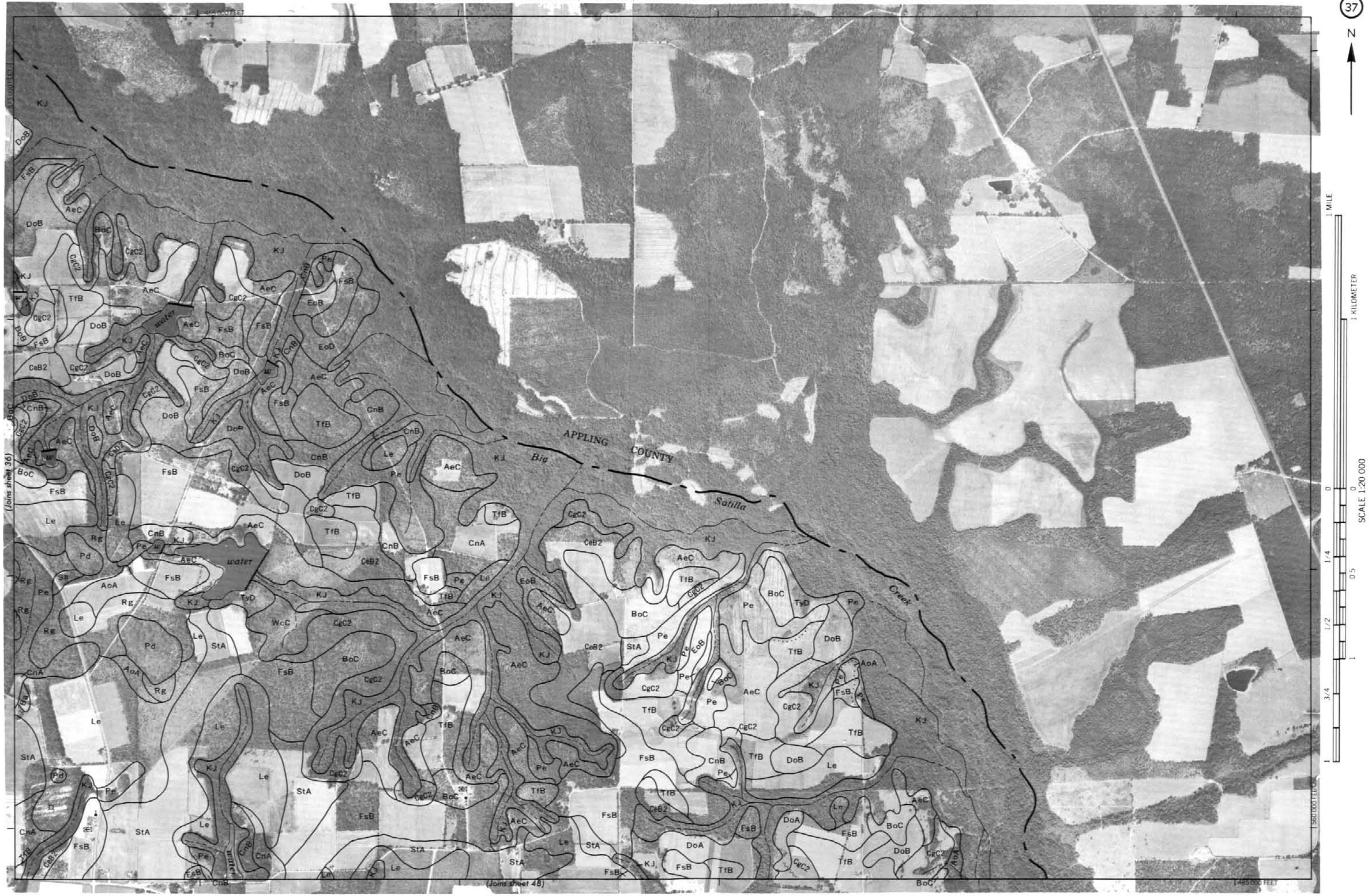
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 34



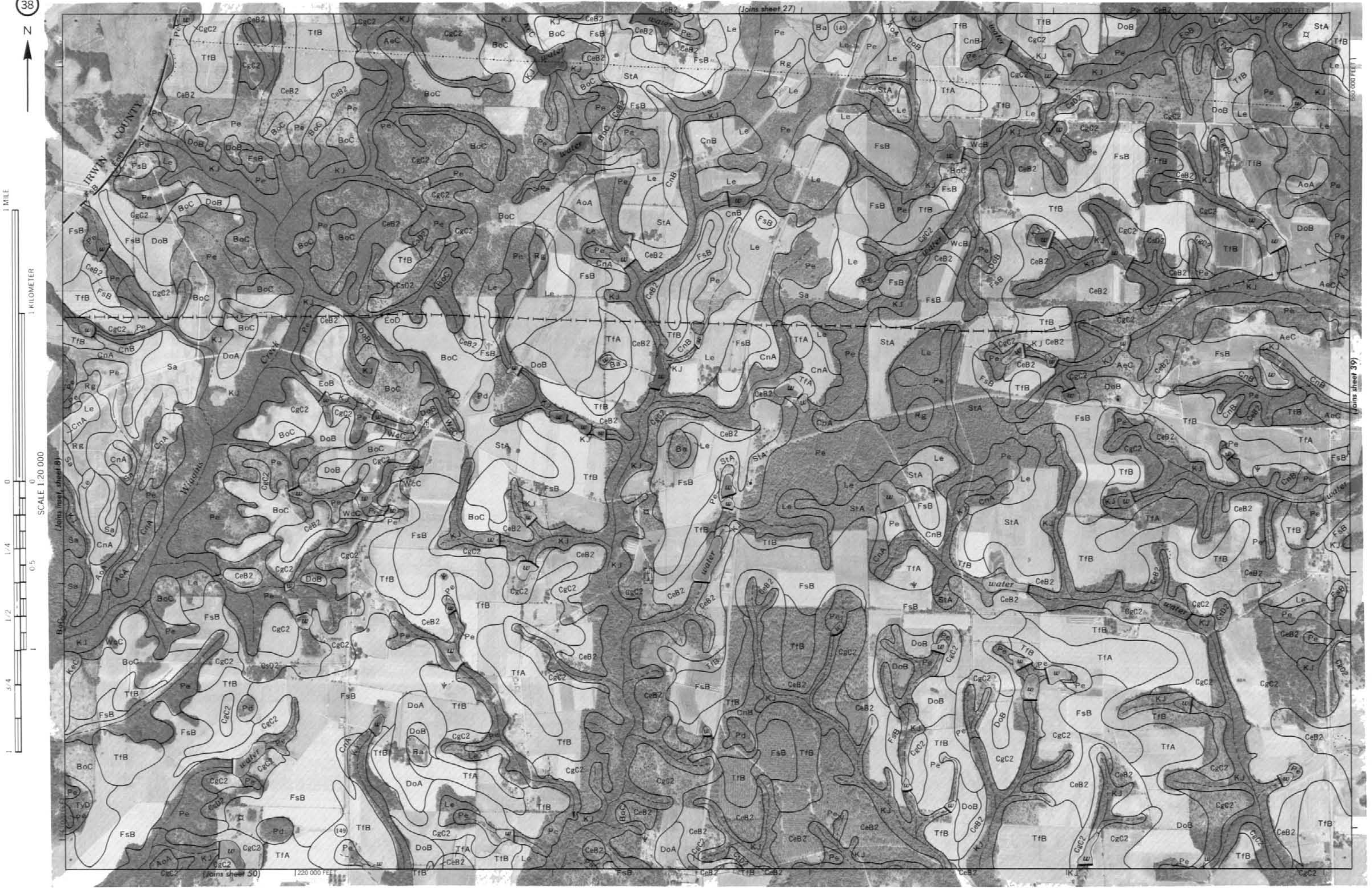
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 35



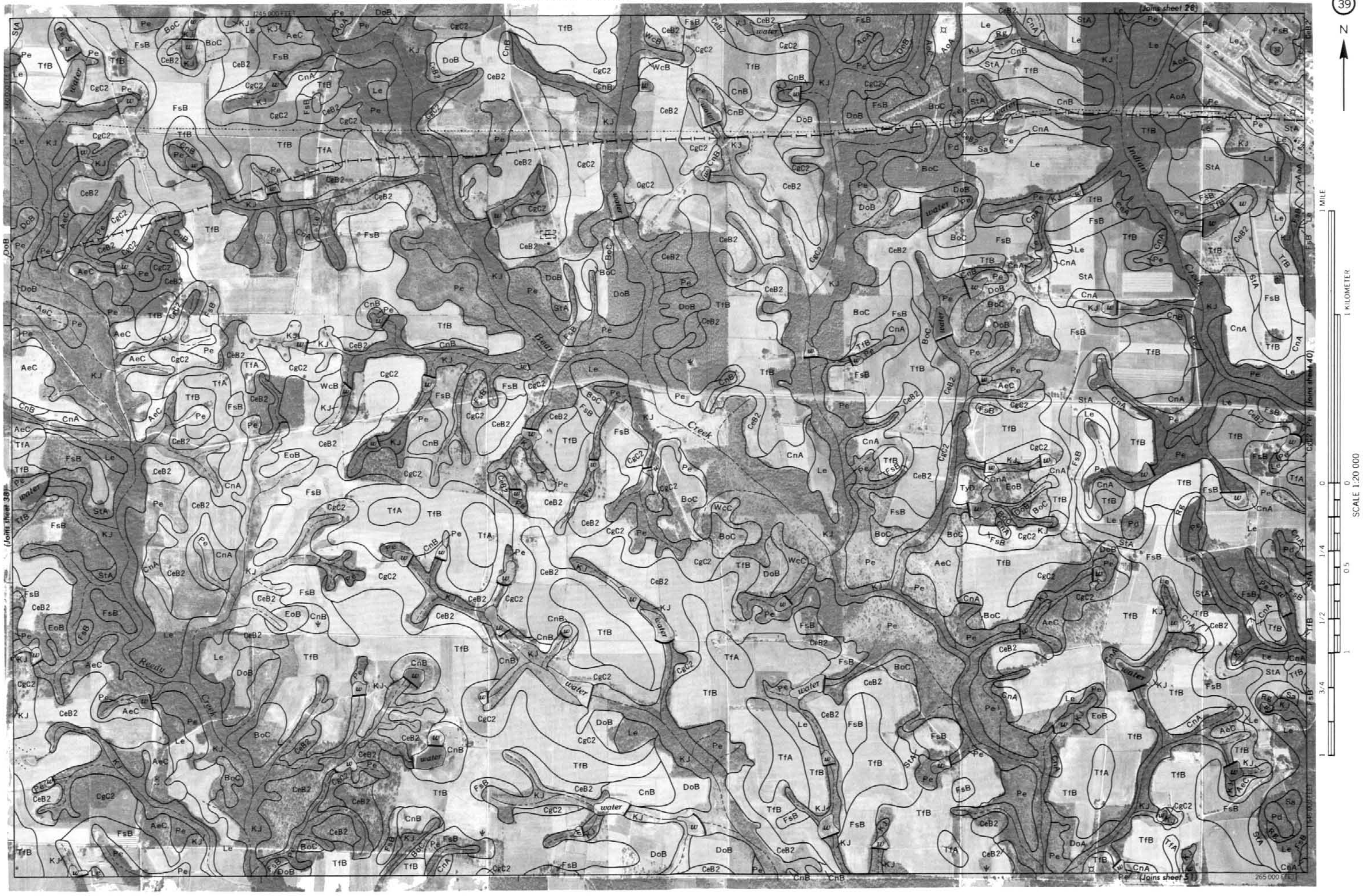

N
(Joins sheet 26)
(Joins sheet 35)
(Joins sheet 37)
(Joins sheet 47)
APPLING CO
Big Satilla Creek
Briar Creek
Fishing Creek
water
99
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
360 000 FEET


37
N
APPLING COUNTY
Big Satilla Creek
(Joins sheet 36)
(Joins sheet 48)
water
KJ
DoB
FsB
AeC
BoC
CgC2
TfB
CeB2
CnB
CnA
EoB
EoD
Pe
Le
Rg
Pd
AoA
TyD
WcC
StA
DoA
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5

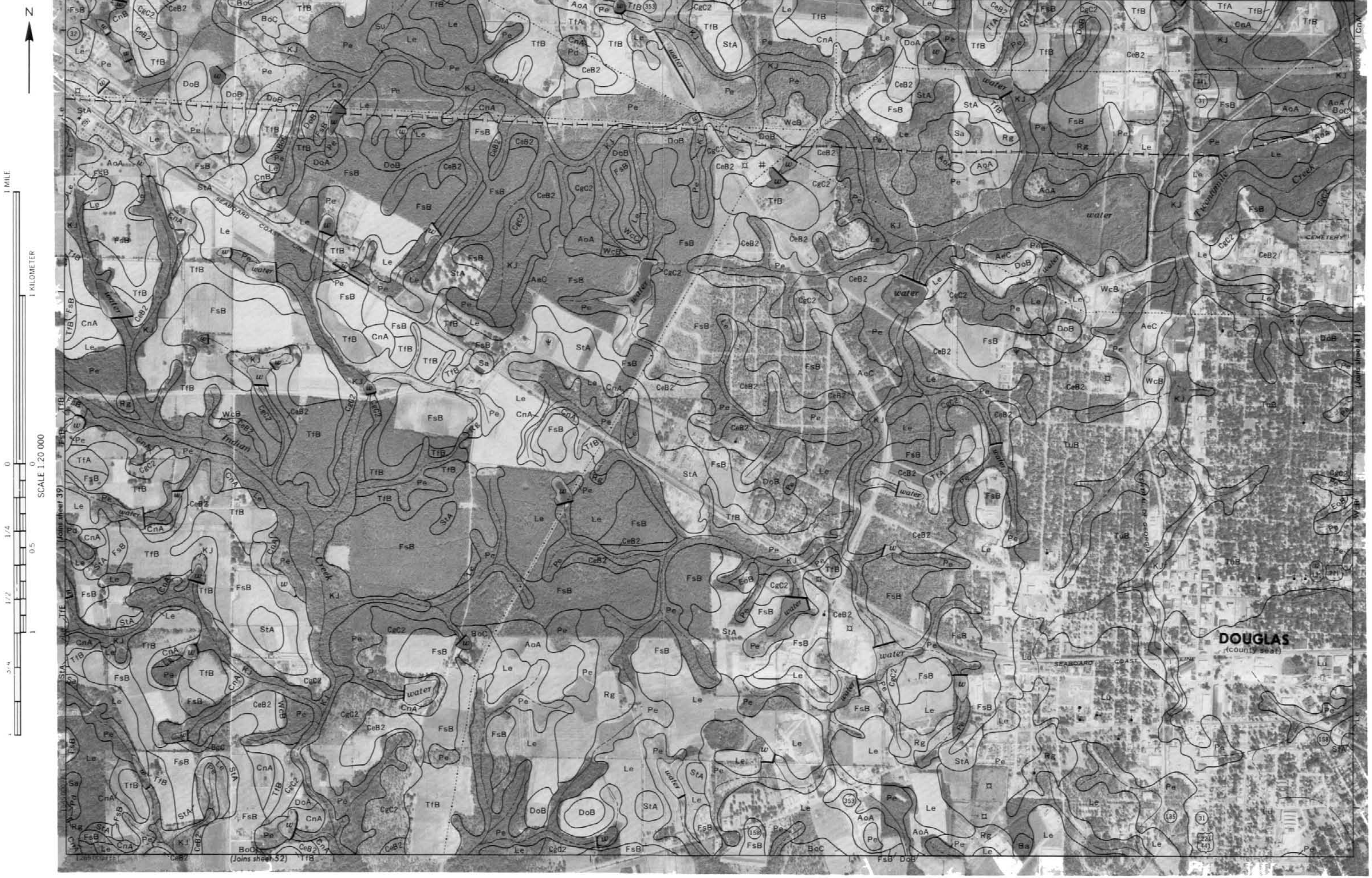
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 38



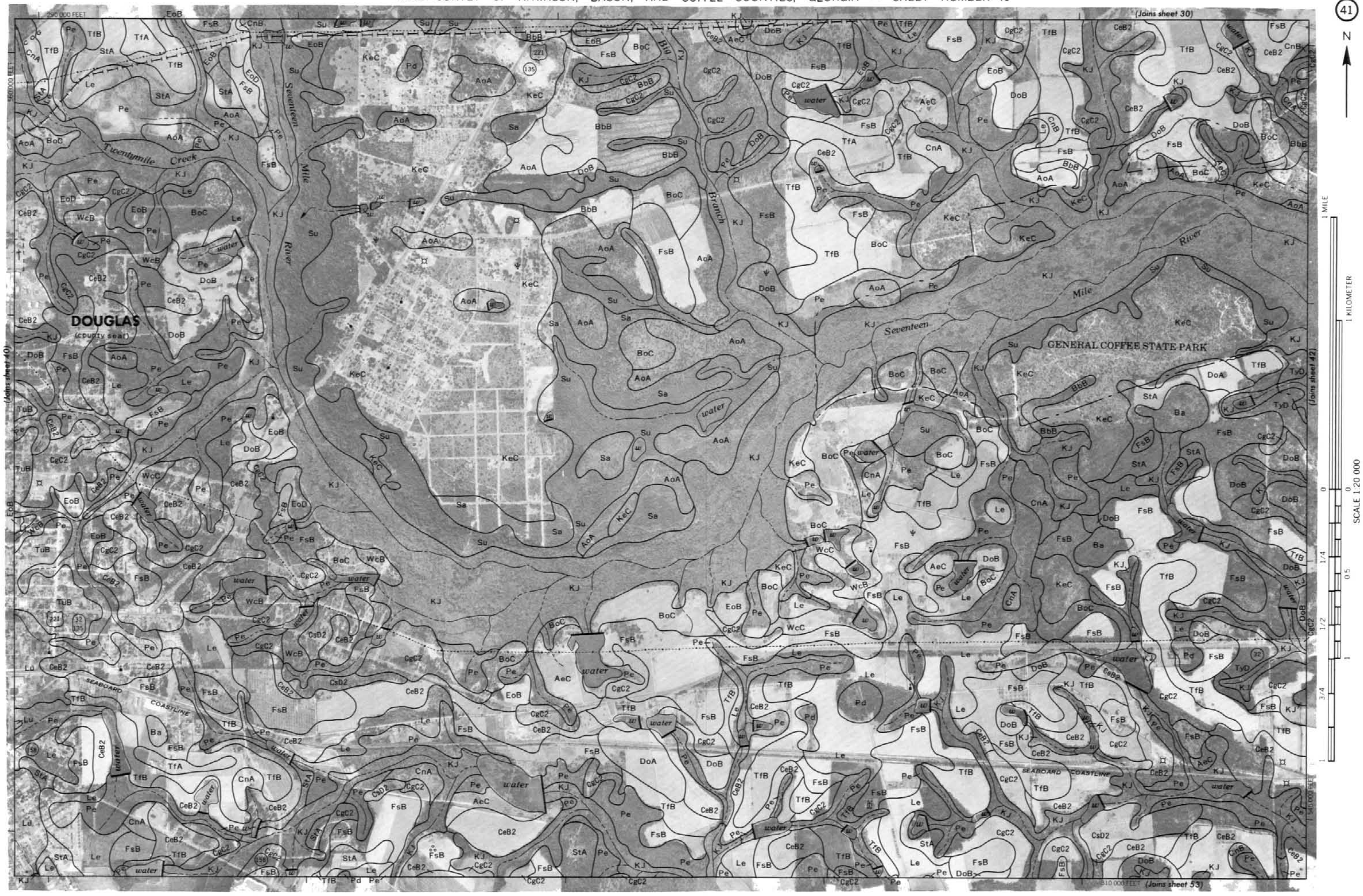
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 39

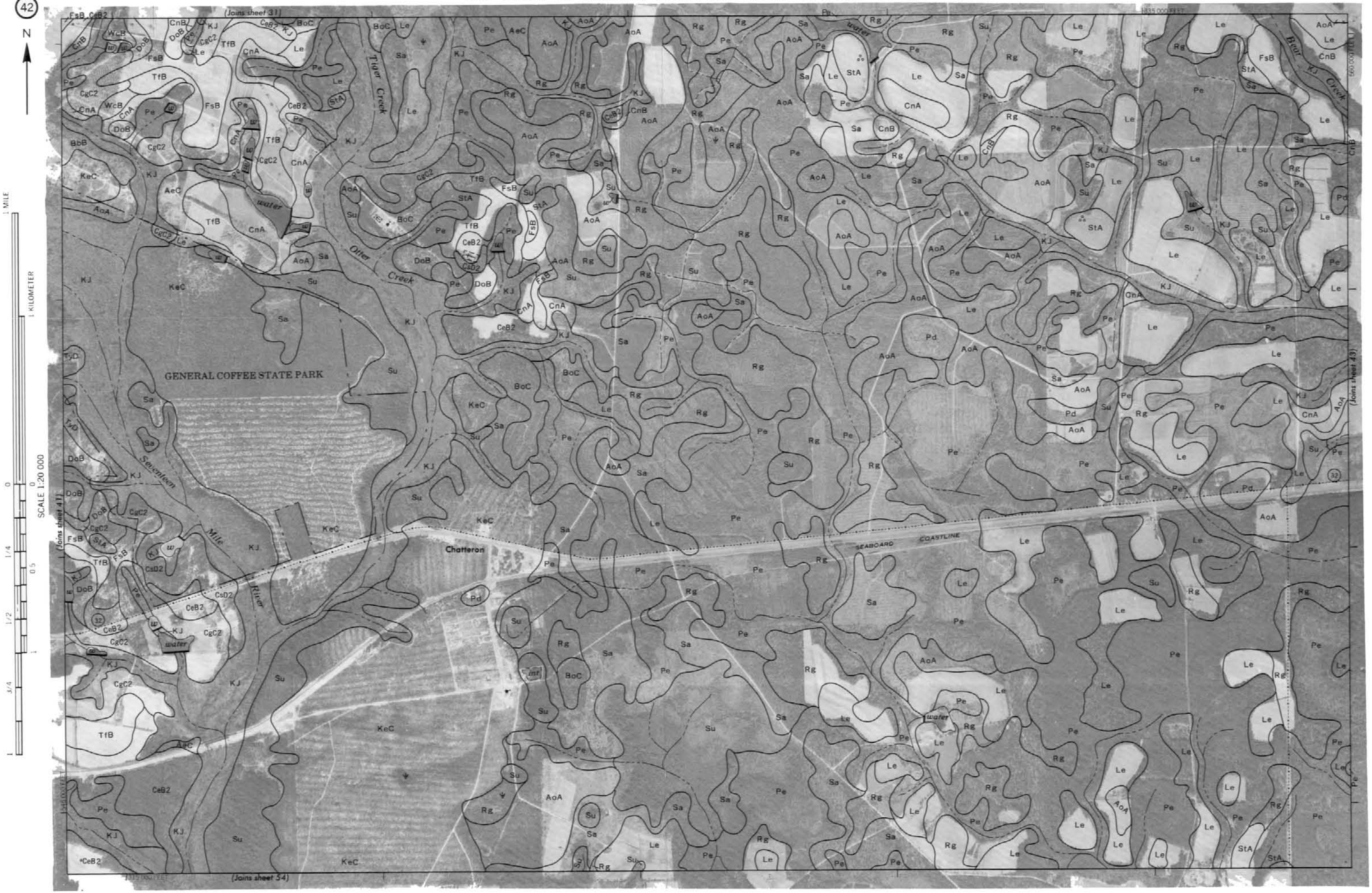


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 40

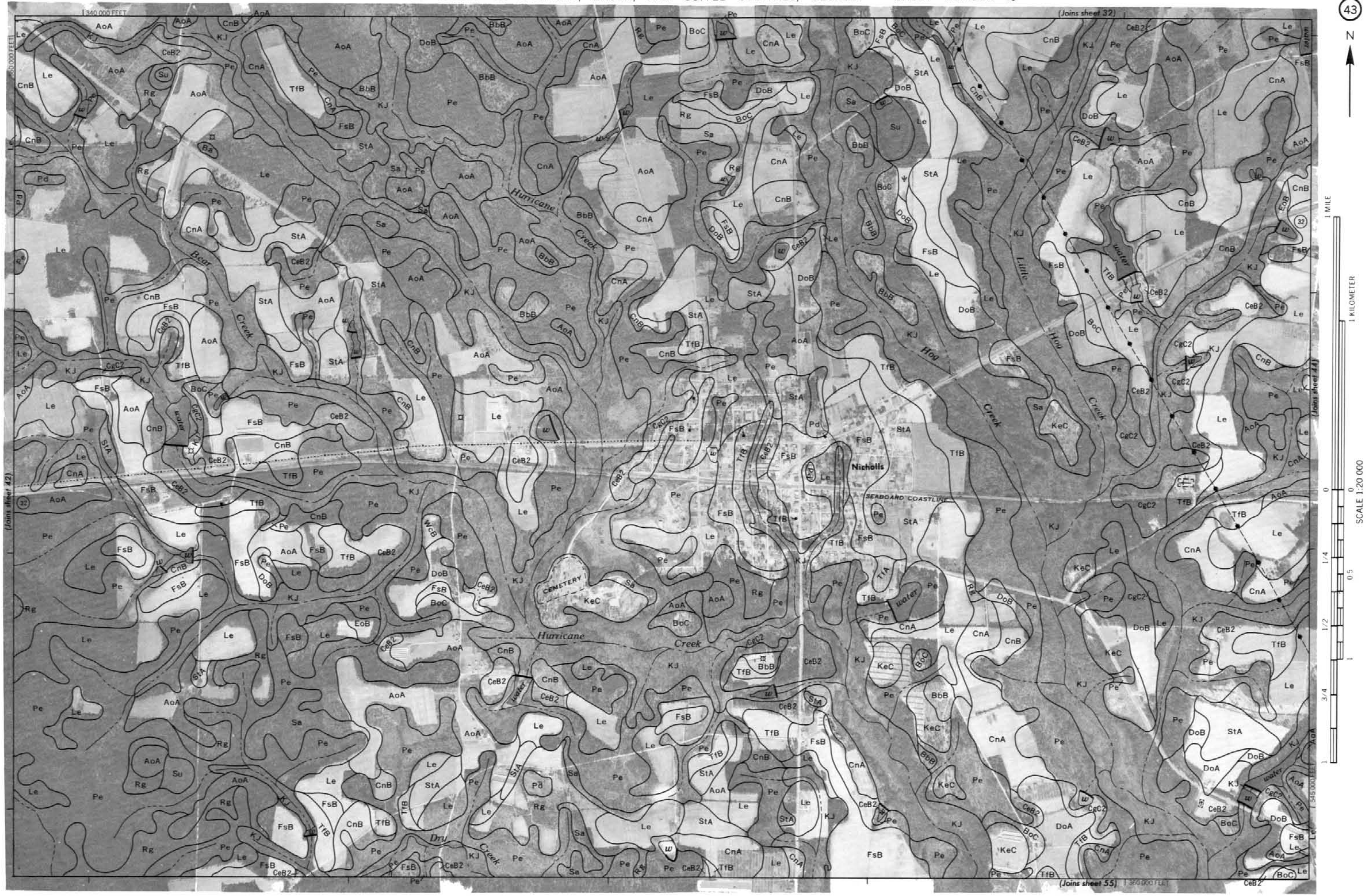


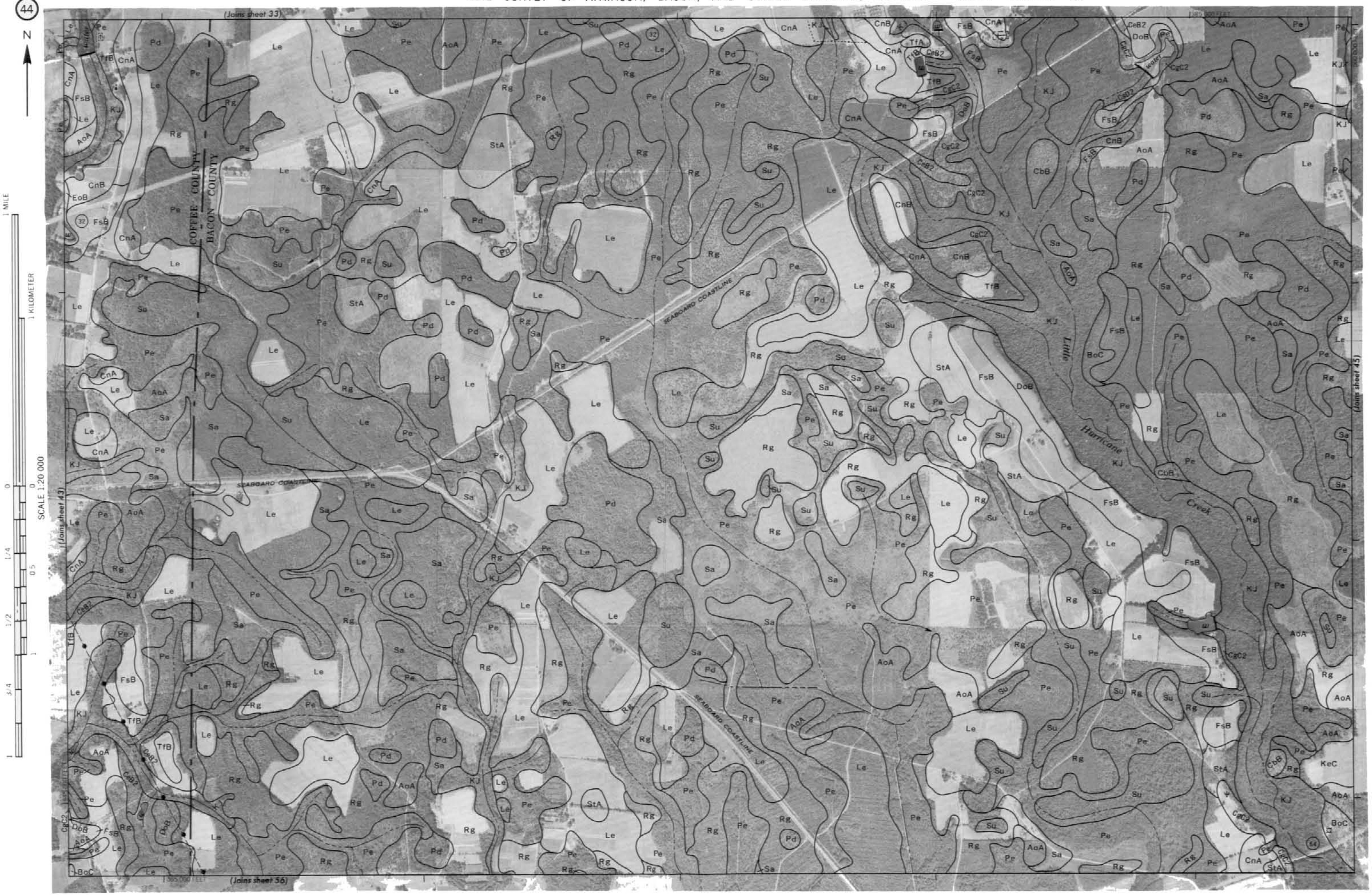
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 41

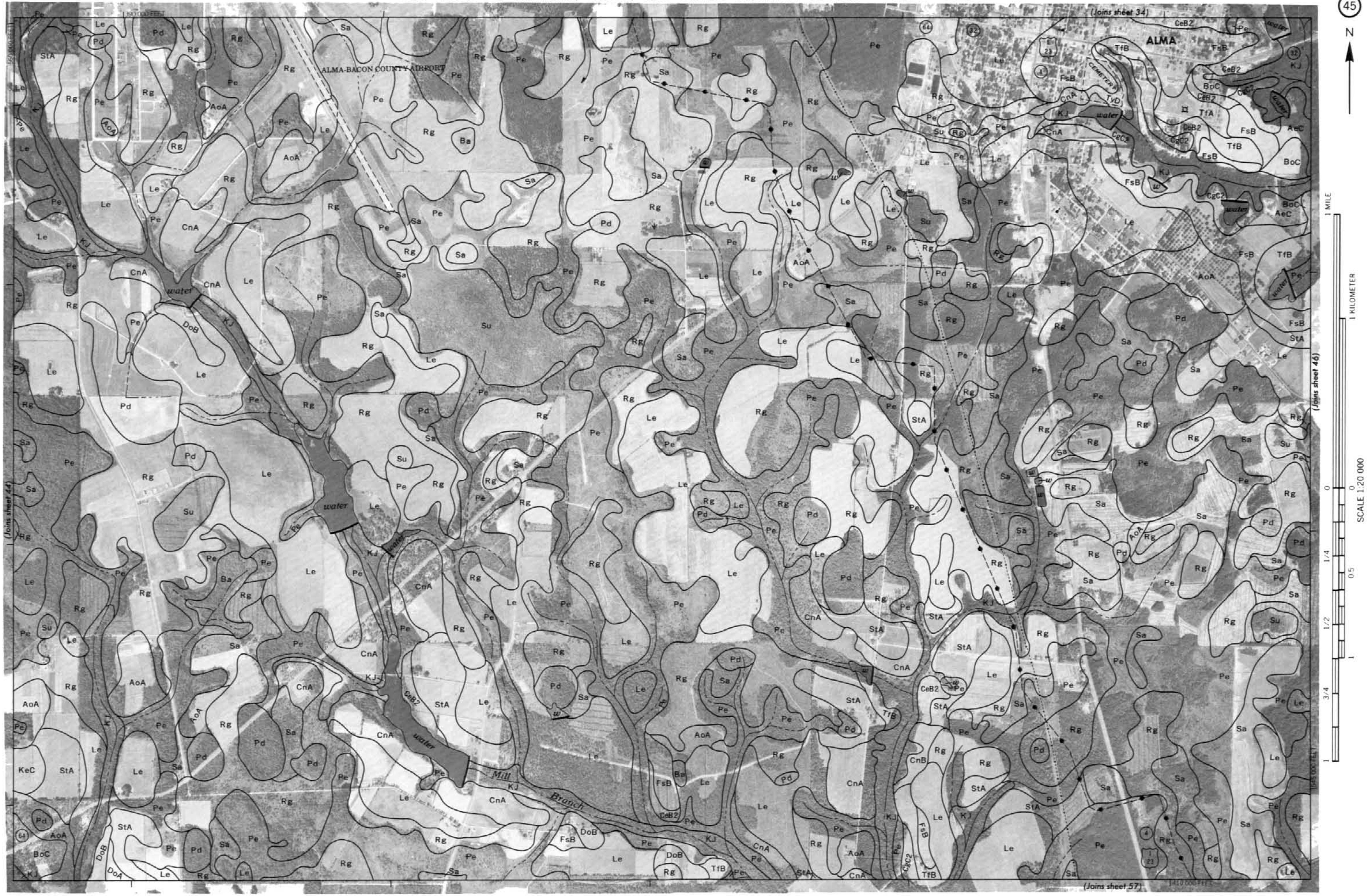


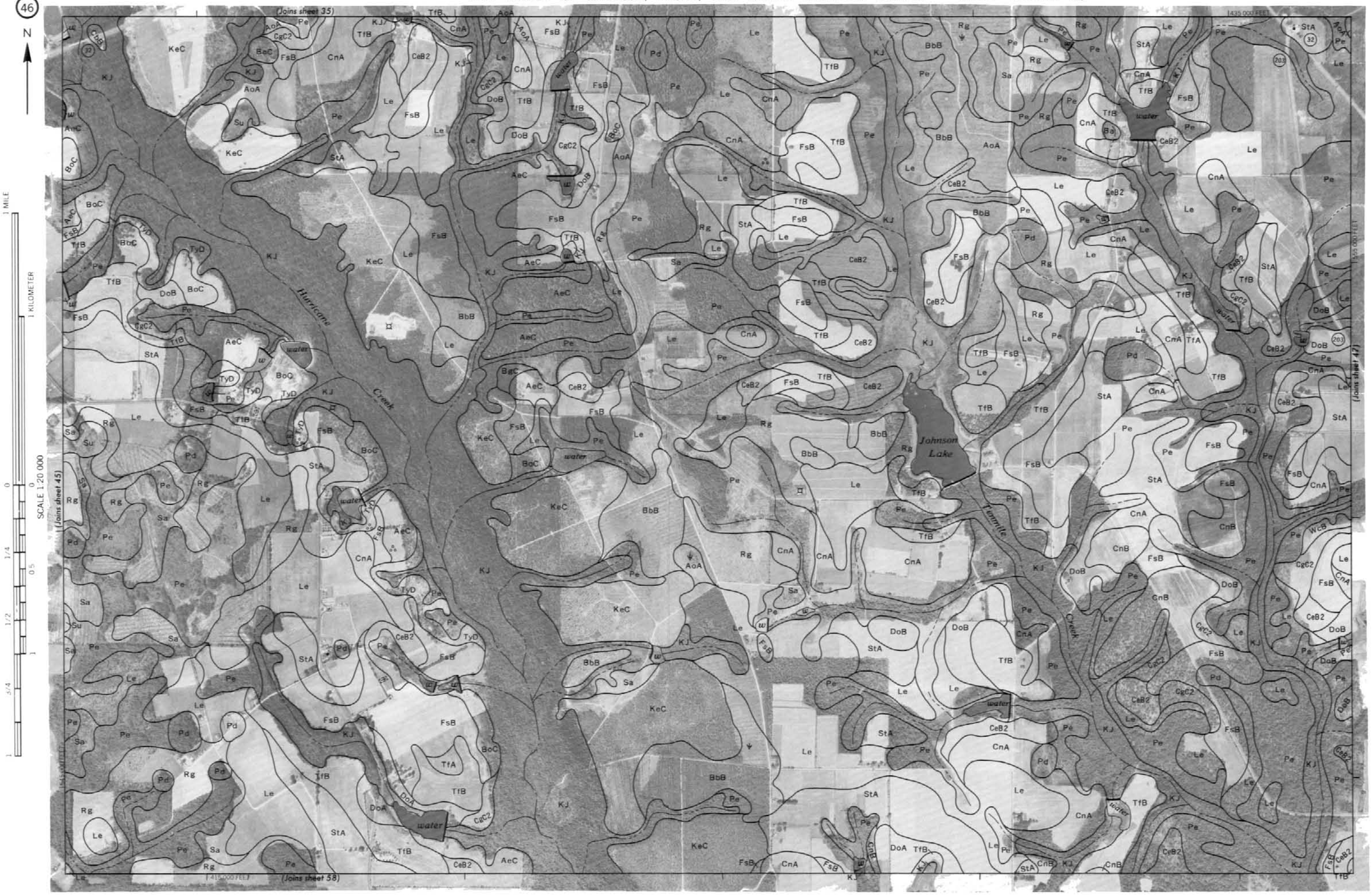

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 31)
(Joins sheet 41)
(Joins sheet 43)
(Joins sheet 54)
1835 000 FEET
560 000 FEET
1815 000 FEET
540 000 FEET
GENERAL COFFEE STATE PARK
Chatteron
SEABOARD COASTLINE
Tiger Creek
Otter Creek
Seventeen Mile River
Bear Creek
water
32
KJ
KeC
Sa
Su
Pe
Le
Rg
AoA
CnA
CnB
TfB
FsB
DoB
BoC
CeB2
CgC2
CsD2
StA
Pd
AeC
WcB
BbB
TyD
w

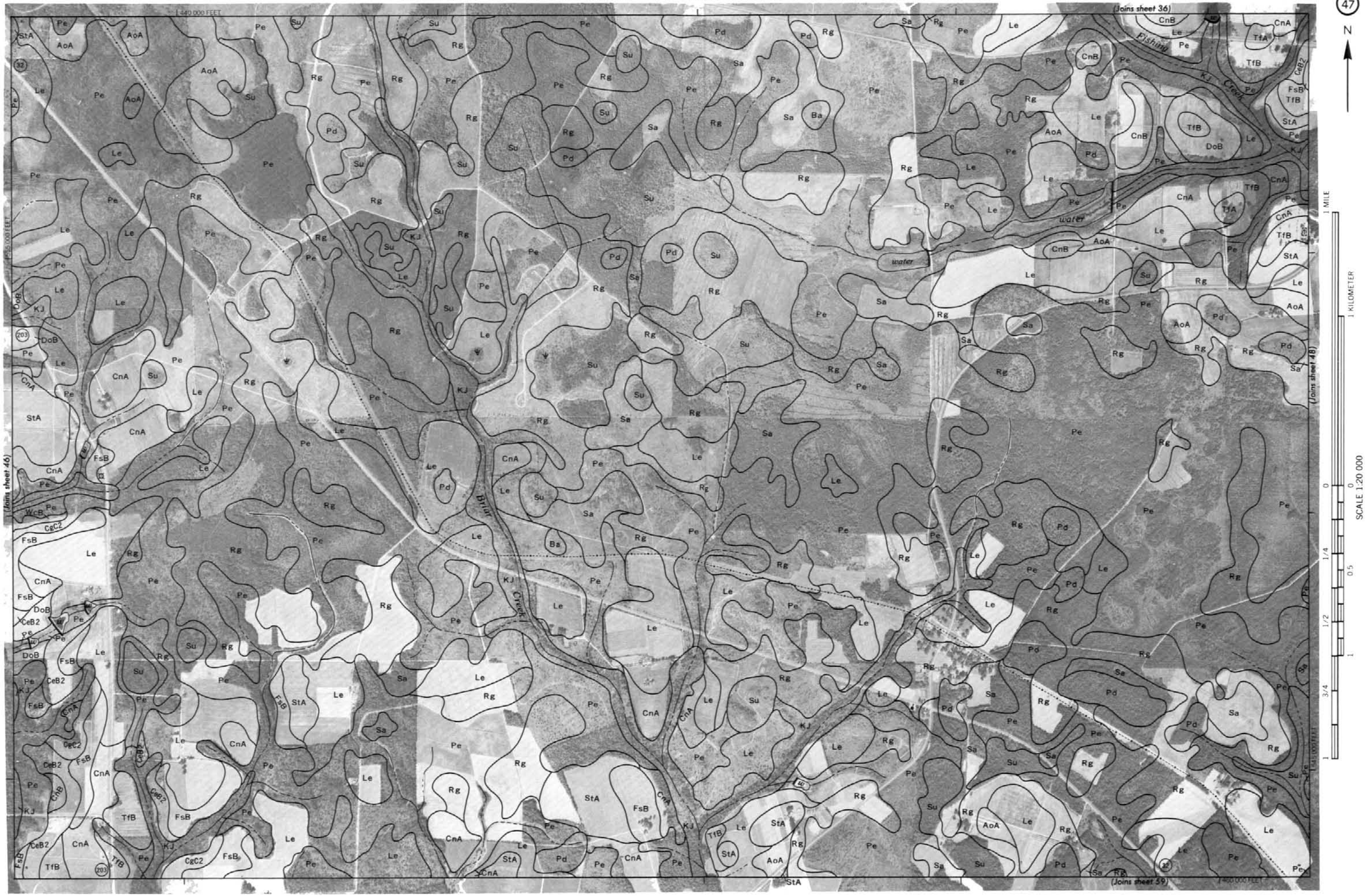
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 43

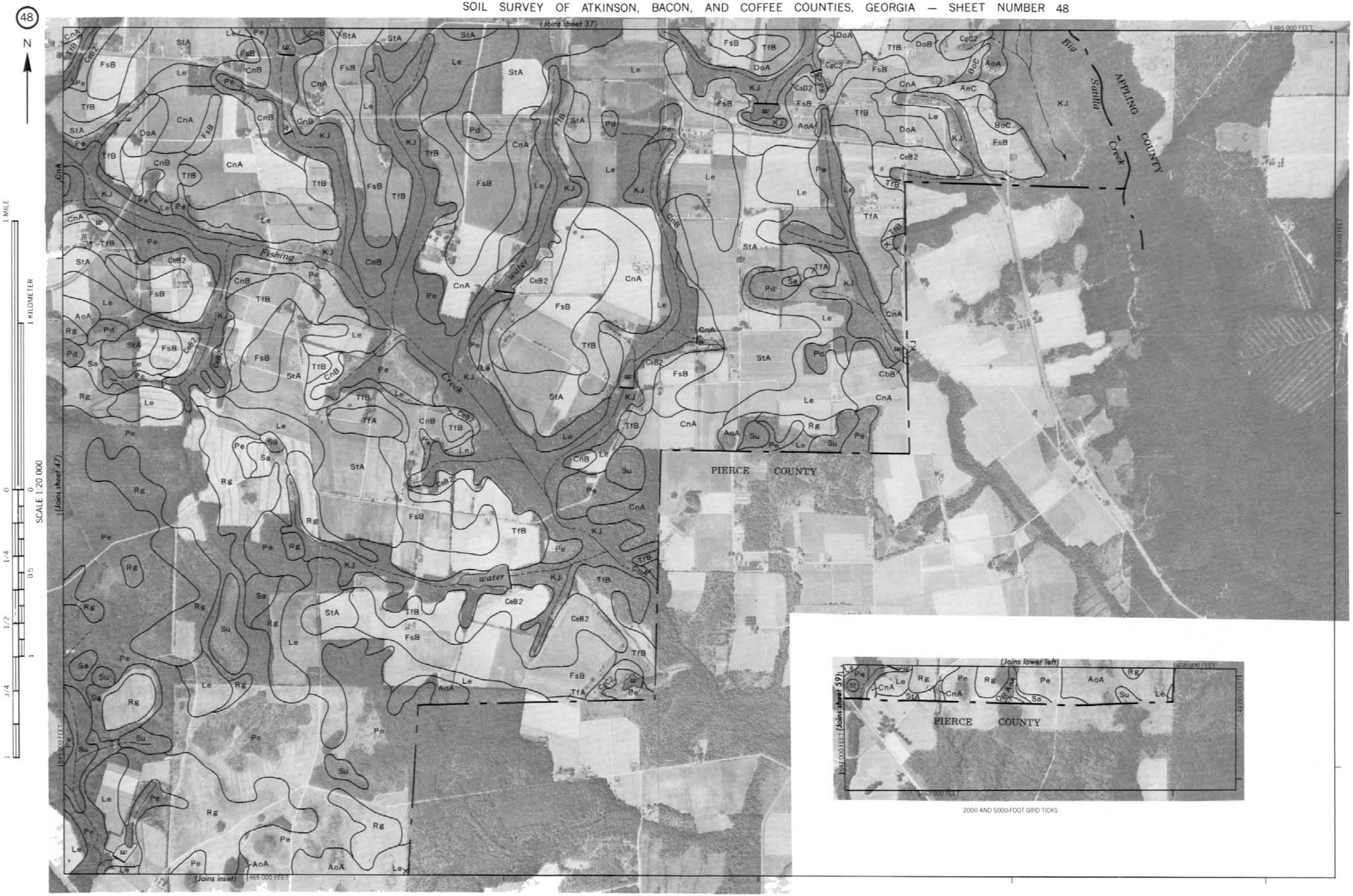



44
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 33)
(Joins sheet 43)
(Joins sheet 45)
(Joins sheet 56)
COFFEE COUNTY
BACON COUNTY
SEABOARD COASTLINE
Little Hurricane Creek
32
54
water

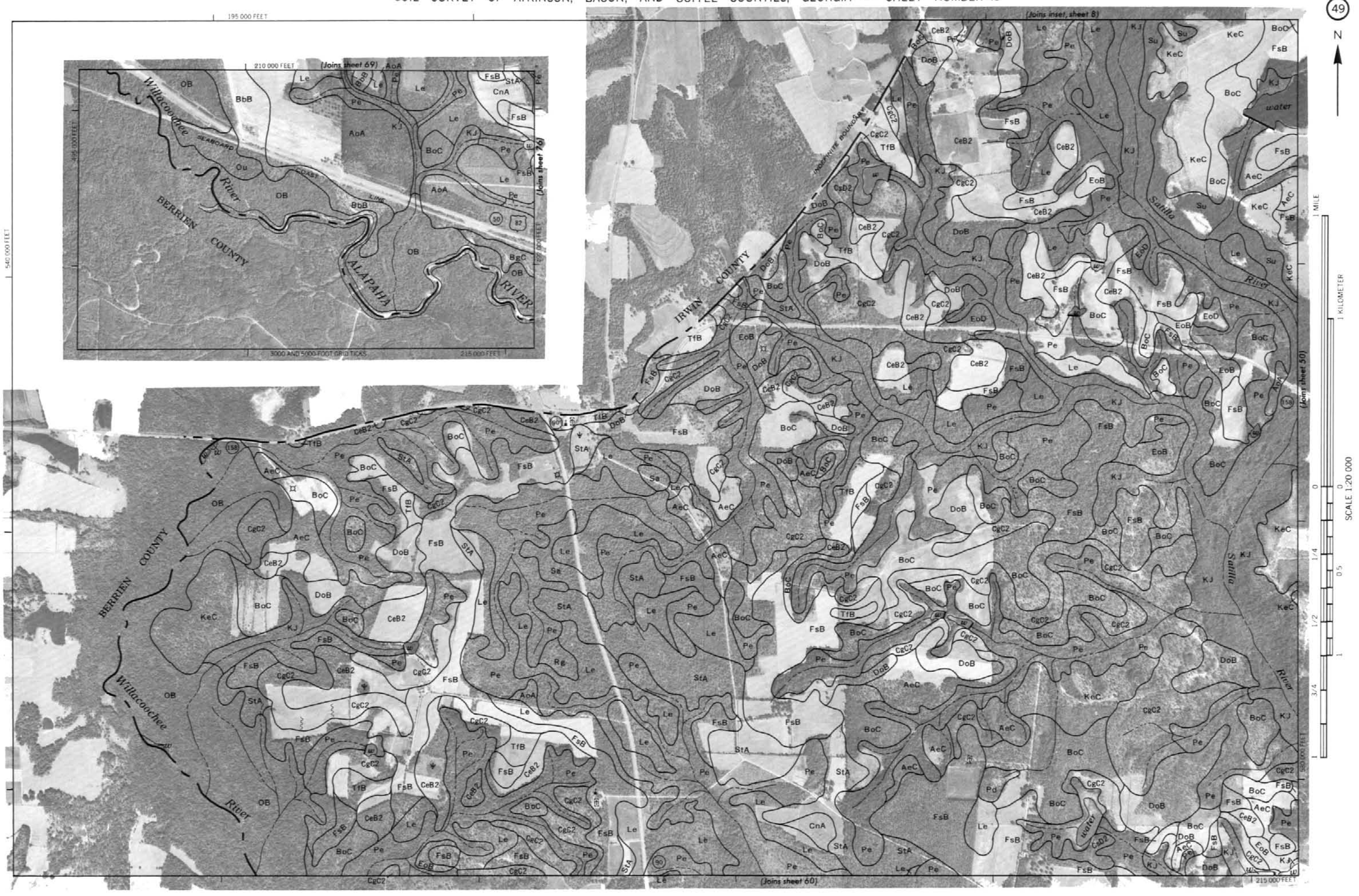

(Joins sheet 34)
(Joins sheet 44)
(Joins sheet 46)
(Joins sheet 57)
ALMA
ALMA-BACON COUNTY AIRPORT
CEMETERY
Mill Branch
water
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
1390 000 FEET
1410 000 FEET
AoA
AeC
Ba
BoC
CeB2
CgC2
CnA
CnB
DoA
DoB
FsB
KeC
KJ
Le
Pd
Pe
Rg
Sa
StA
Su
TfA
TfB
TvD
w


N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 35)
(Joins sheet 45)
(Joins sheet 47)
(Joins sheet 58)
435 000 FEET
415 000 FEET
355 000 FEET
Hurricane Creek
Johnson Lake
Tenmile Creek
water
32
203
KJ
Pe
Le
KeC
BbB
AeC
TfB
FsB
CnA
StA
Rg
Sa
Pd
BoC
TyD
CeB2
CgC2
DoB
AoA
CnB
Su
DoA
TfA
BgC
Ba
WcB
ChB

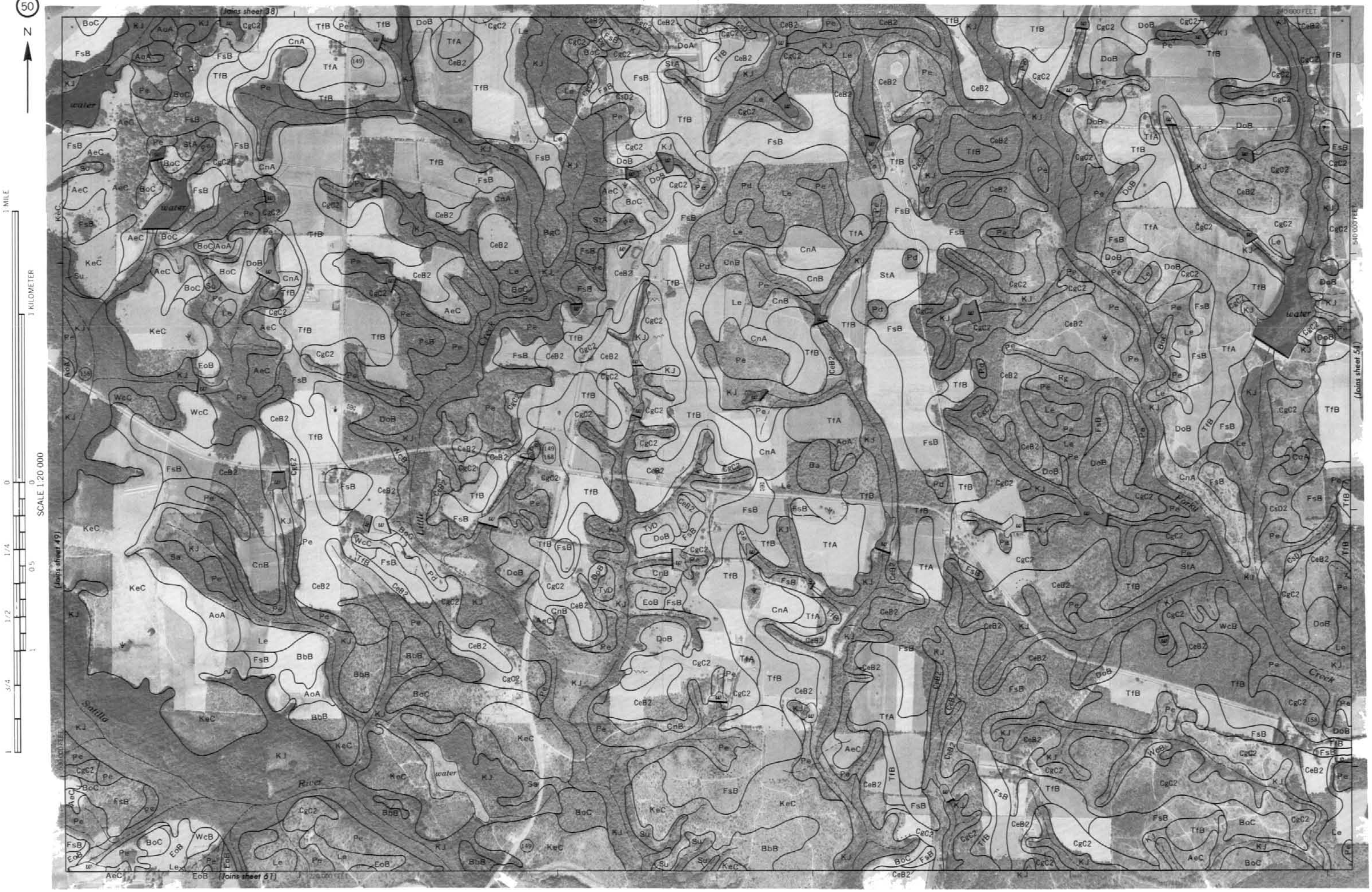

(Joins sheet 36)
(Joins sheet 48)
(Joins sheet 59)
(Joins sheet 46)
1 440 000 FEET
400 000 FEET
Fishing Creek
Briar Creek
water
KJ
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
32
203


48
N
(Joins sheet 37)
(Joins sheet 47)
(Joins inset)
(Joins lower left)
(Joins sheet 59)
Fishing Creek
Big Satilla Creek
APPLING COUNTY
PIERCE COUNTY
water
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
485 000 FEET
465 000 FEET
2000 AND 5000-FOOT GRID TICKS

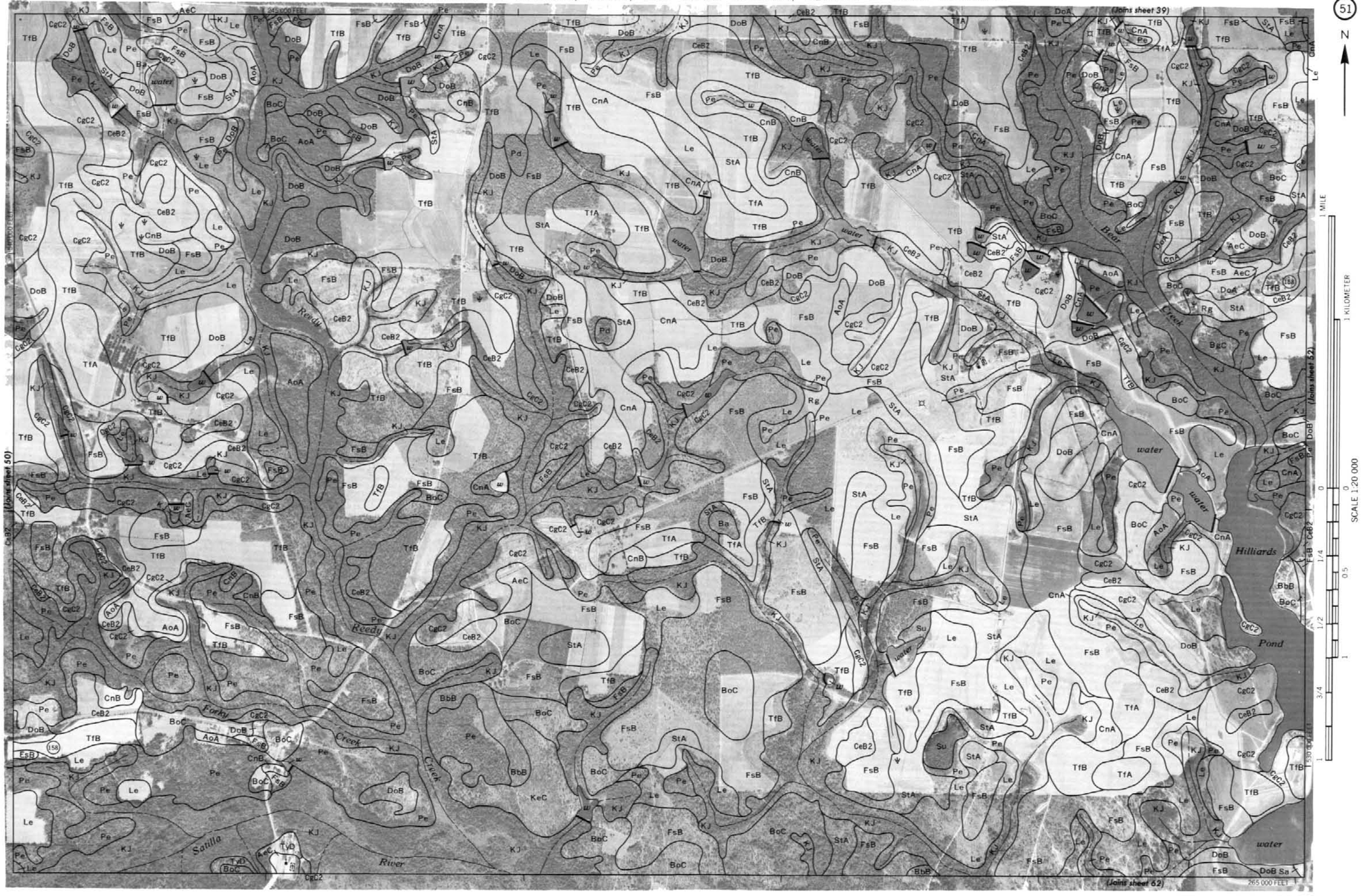
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 49

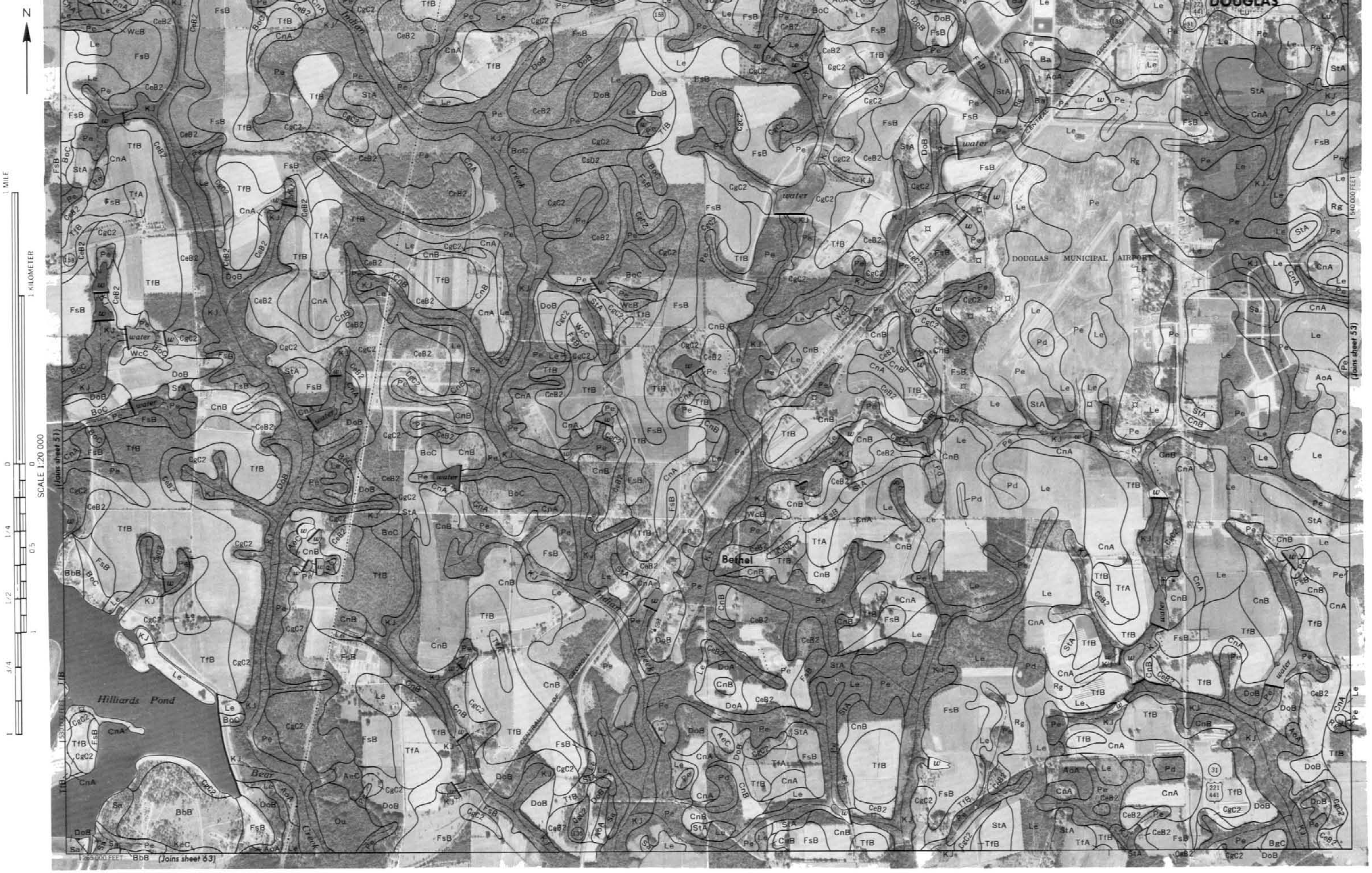


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 50

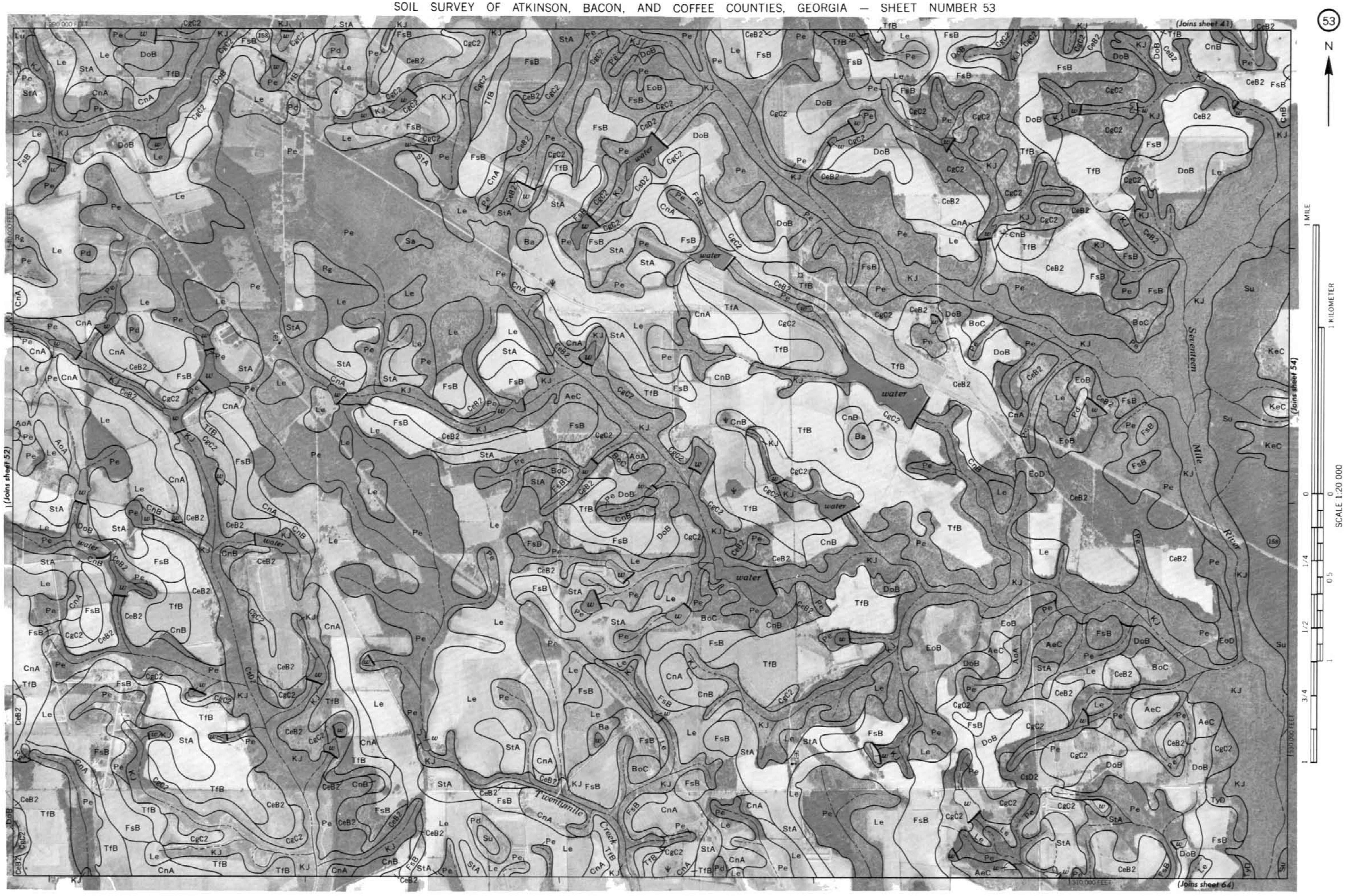


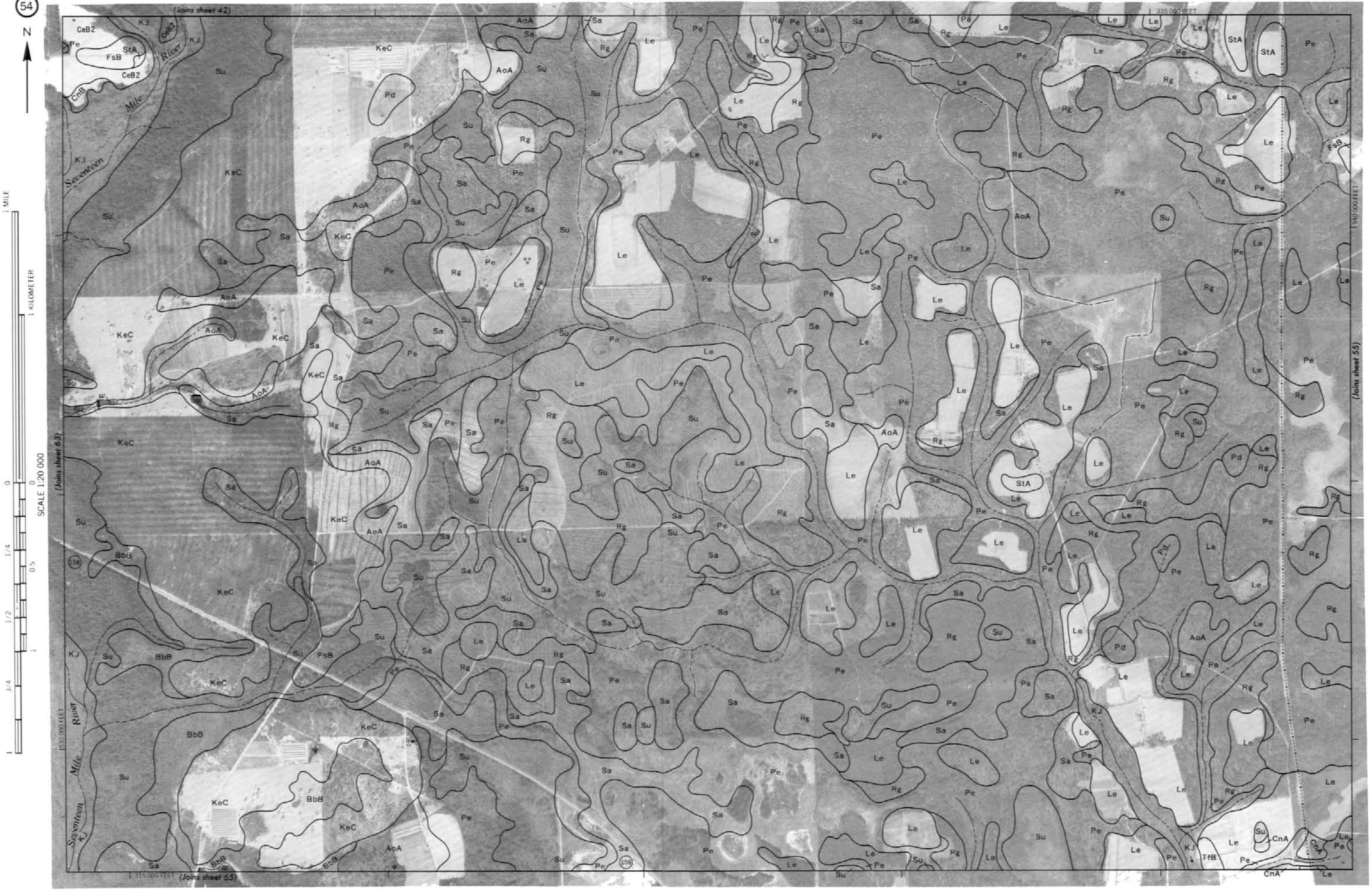
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 51



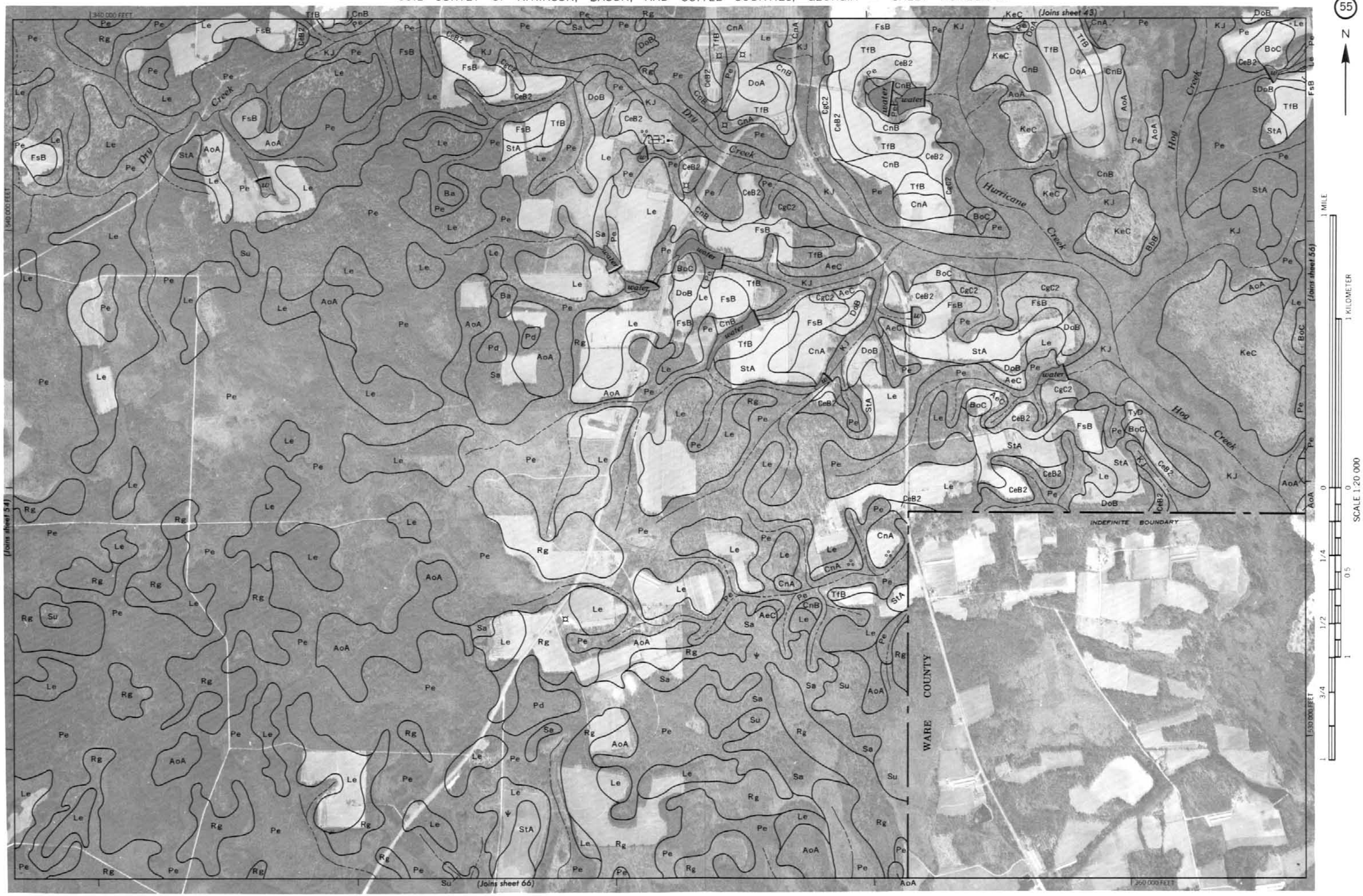

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 40)
(Joins sheet 51)
(Joins sheet 53)
(Joins sheet 63)
DOUGLAS
DOUGLAS MUNICIPAL AIRPORT
Bethel
Hilliards Pond
Indian Creek
Bear Creek
water
1 285 000 FEET
540 000 FEET
158
135
221
441
31

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 53

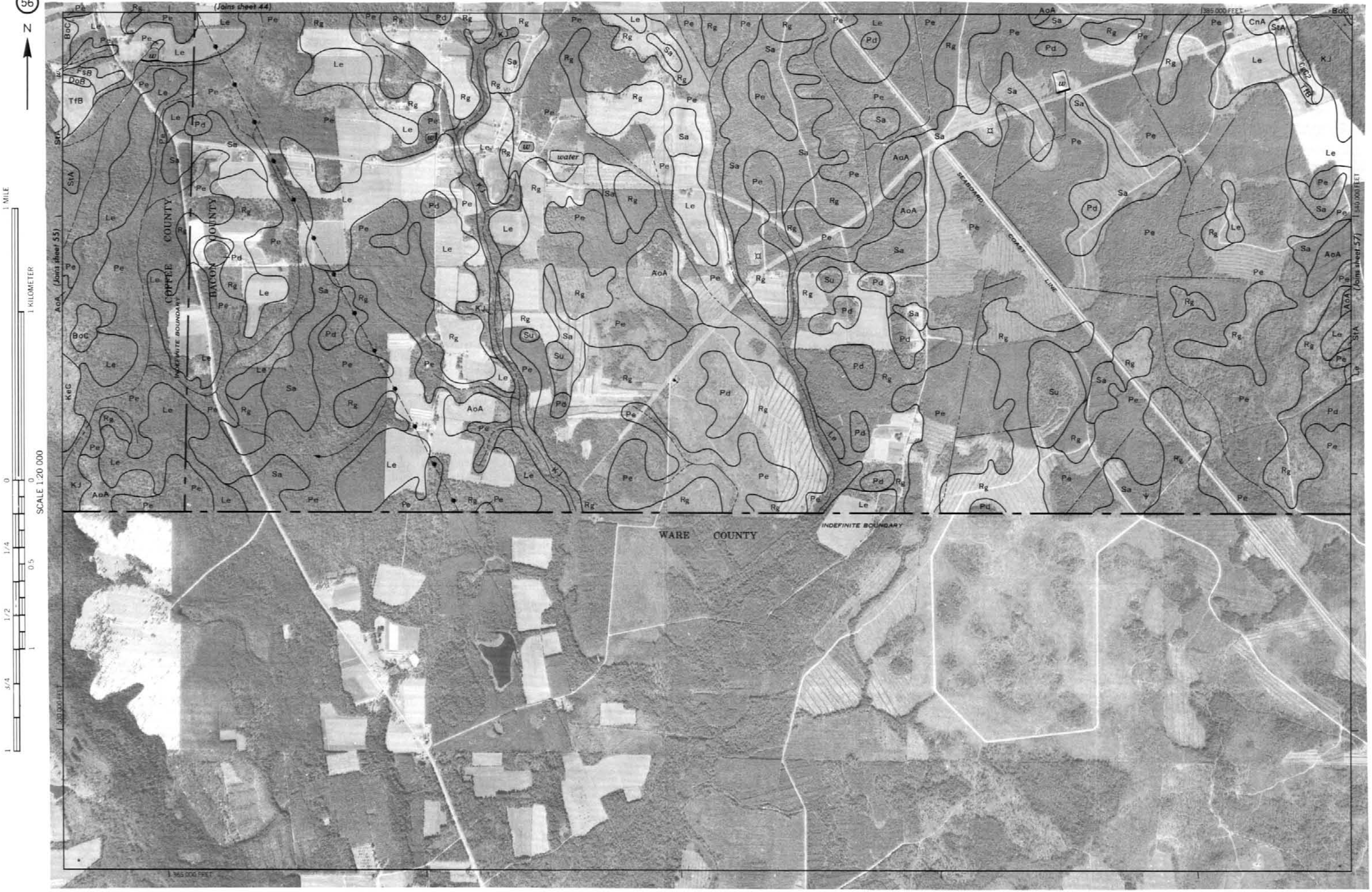



N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 42)
335 000 FEET
540 000 FEET
(Joins sheet 55)
(Joins sheet 53)
530 000 FEET
315 000 FEET
(Joins sheet 65)
Seventeen Mile River
Seventeen Mile River
158
158
KeC
BbB
Su
Sa
Pe
Le
Rg
AoA
KJ
StA
FsB
CeB2
CnB
CnA
Pd
TfB

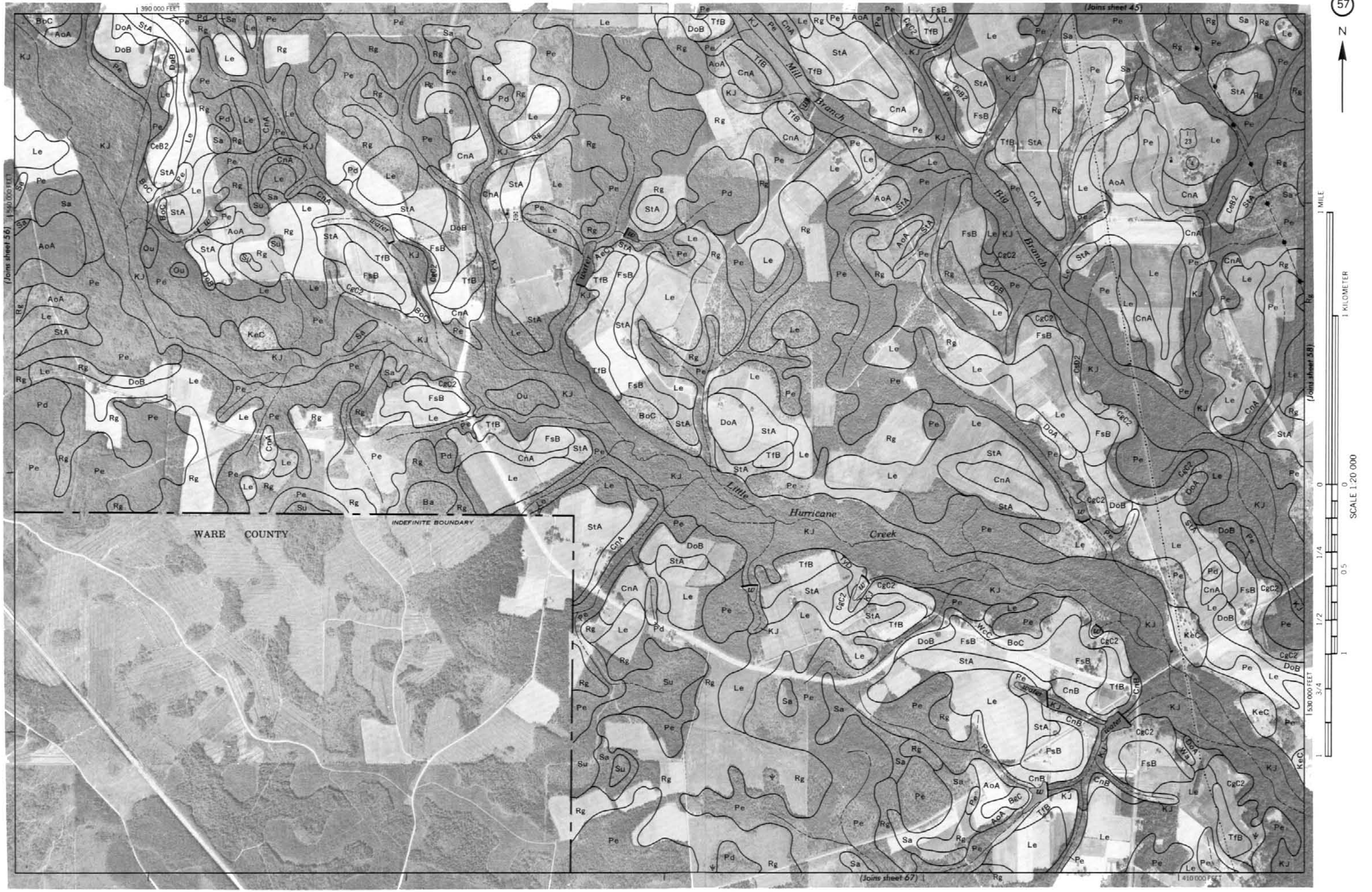
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 55



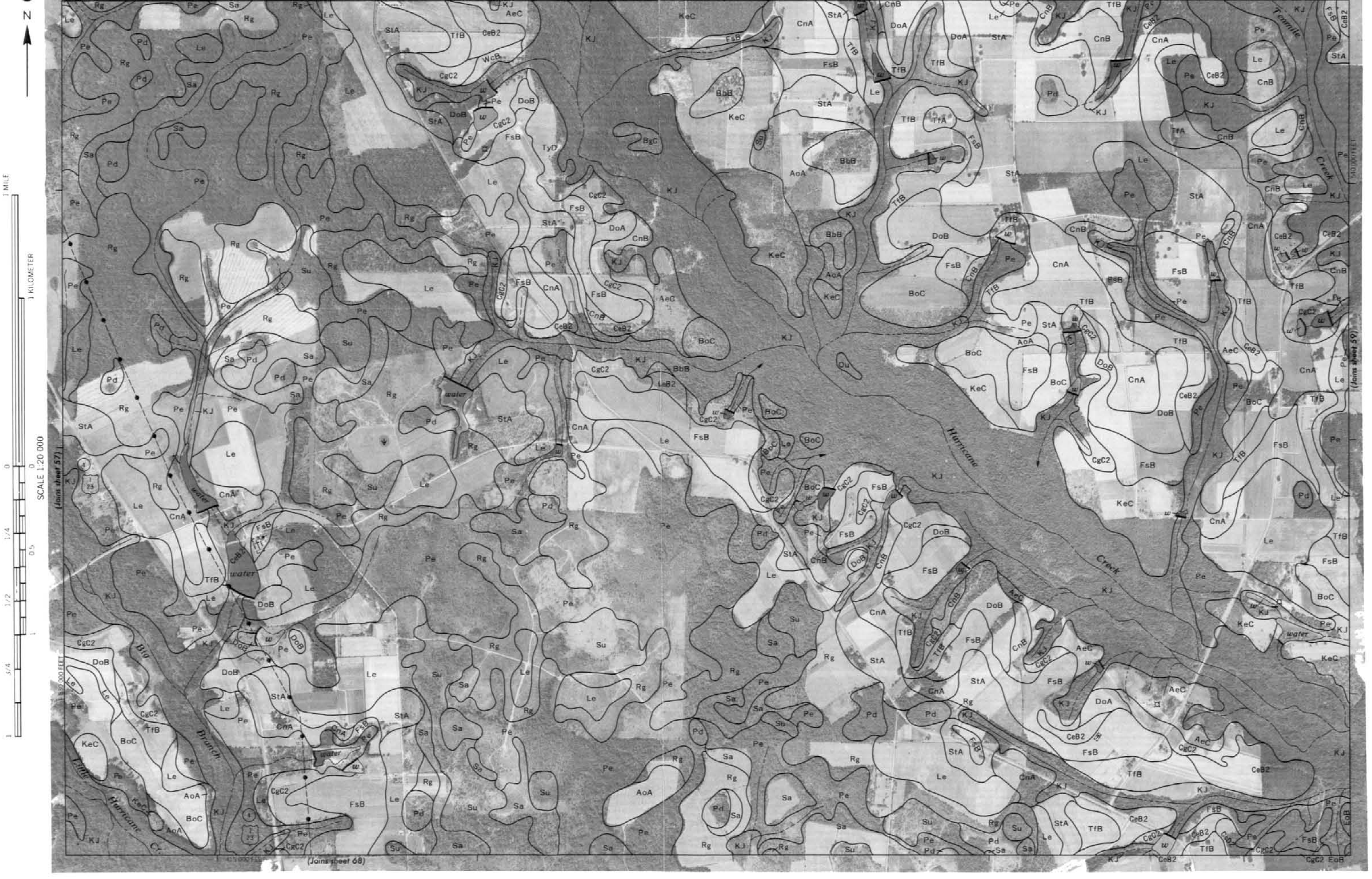
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 56

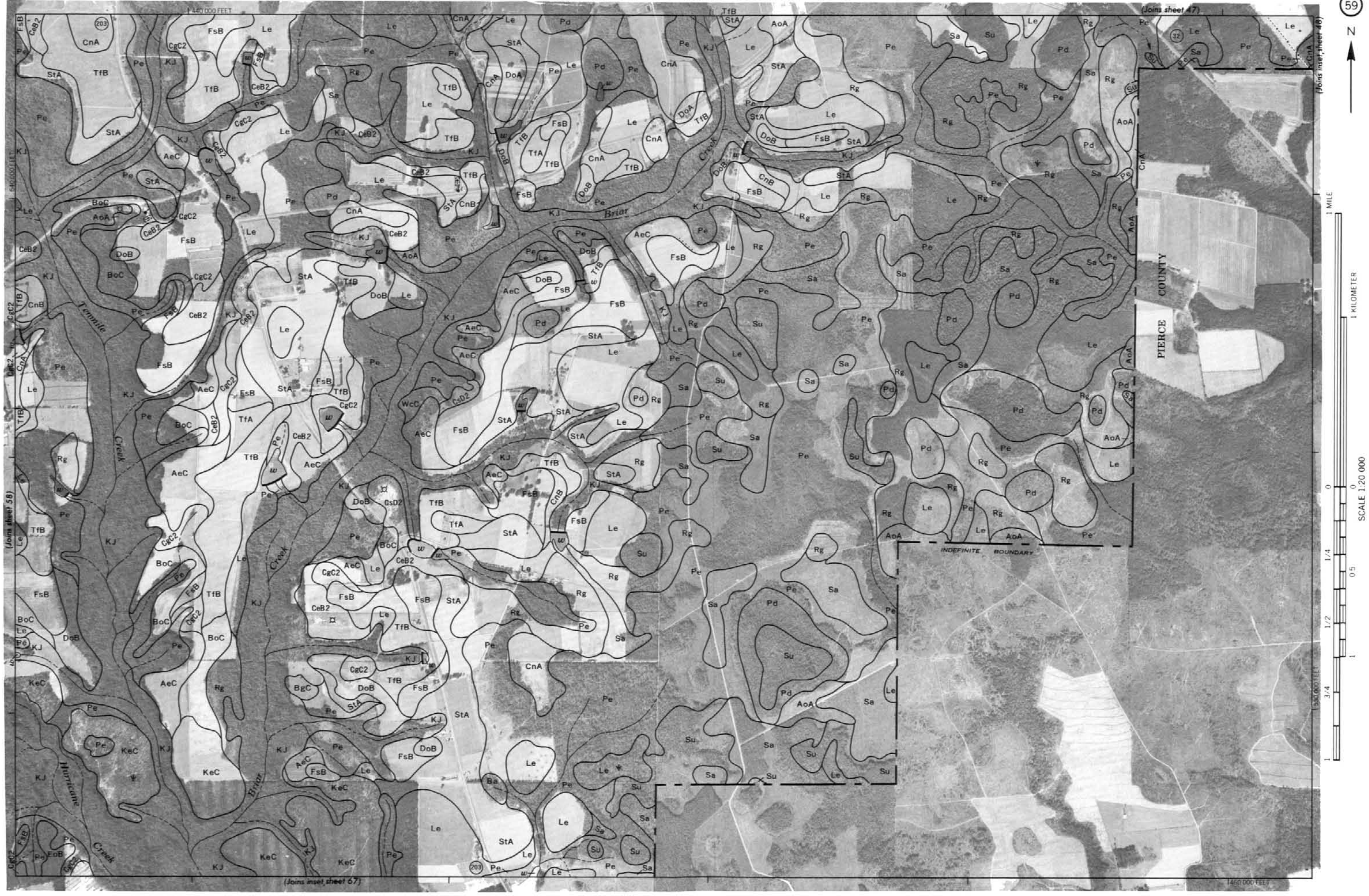


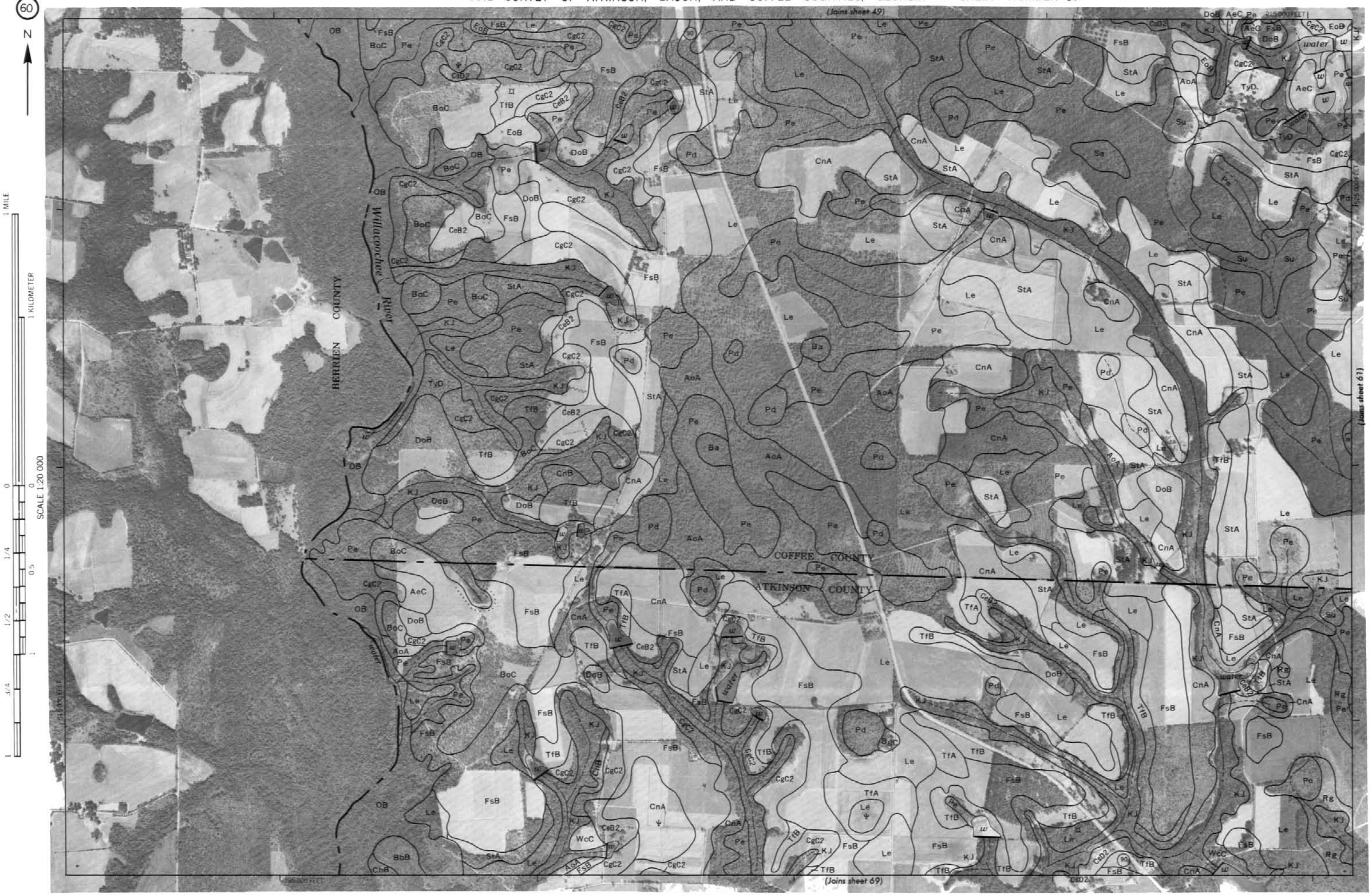
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 57



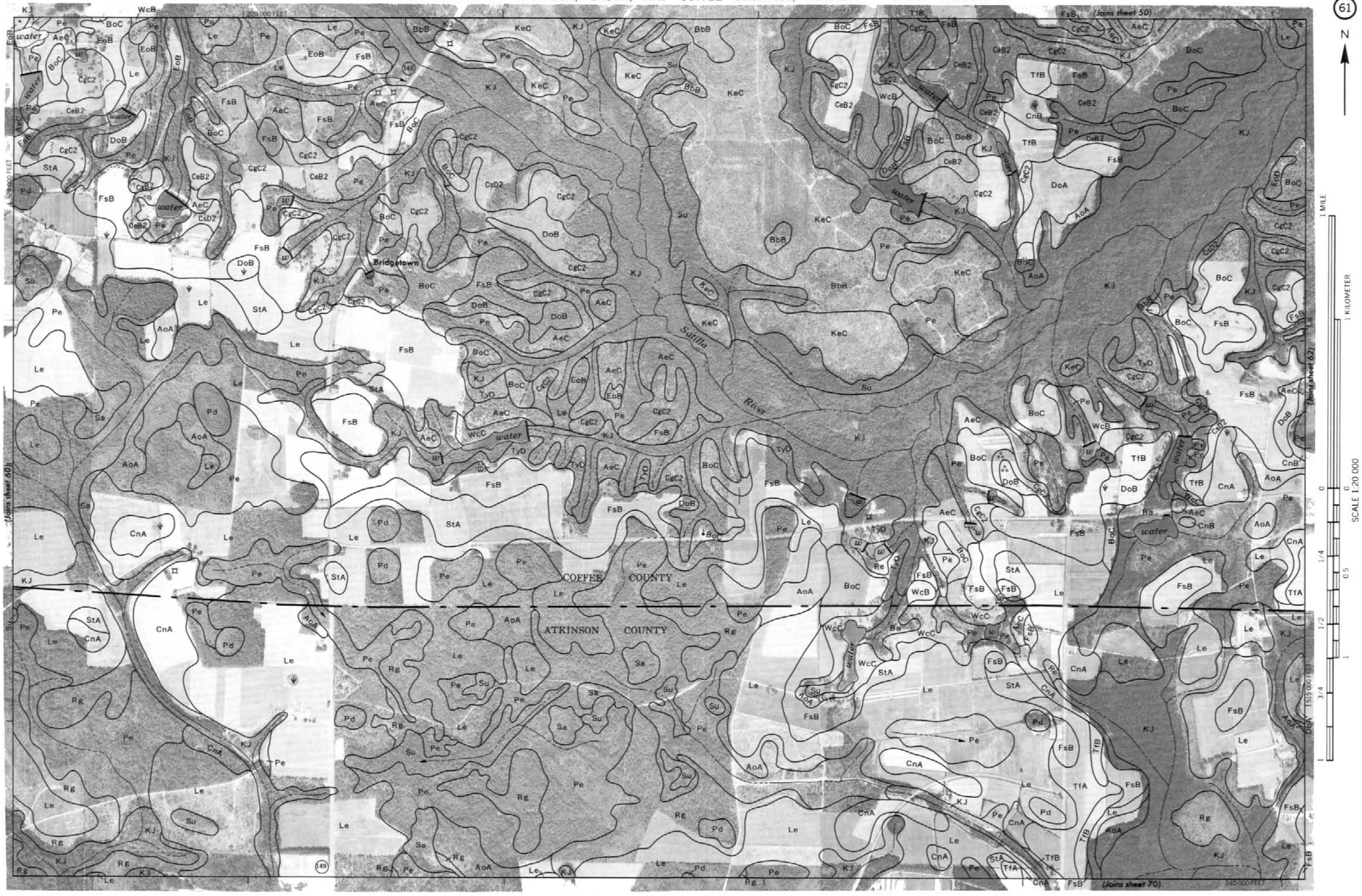
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 58



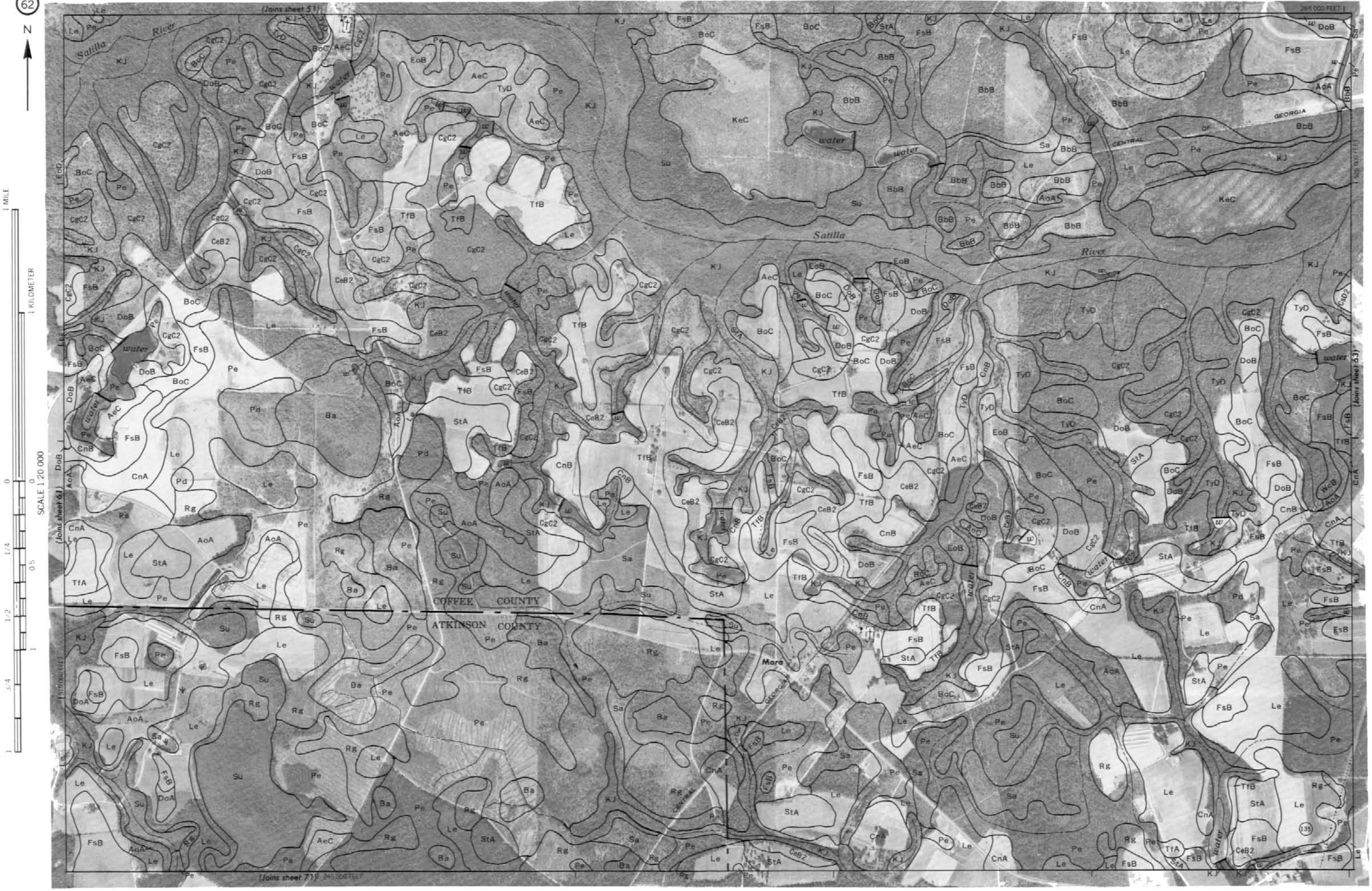

(Joins sheet 47)
(Joins inset, sheet 48)
(Joins sheet 58)
(Joins inset, sheet 67)
1 440 000 FEET
1 460 000 FEET
540 000 FEET
530 000 FEET
N
Briar Creek
Tenmile Creek
Hurricane Creek
PIERCE COUNTY
INDEFINITE BOUNDARY
203
32
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5

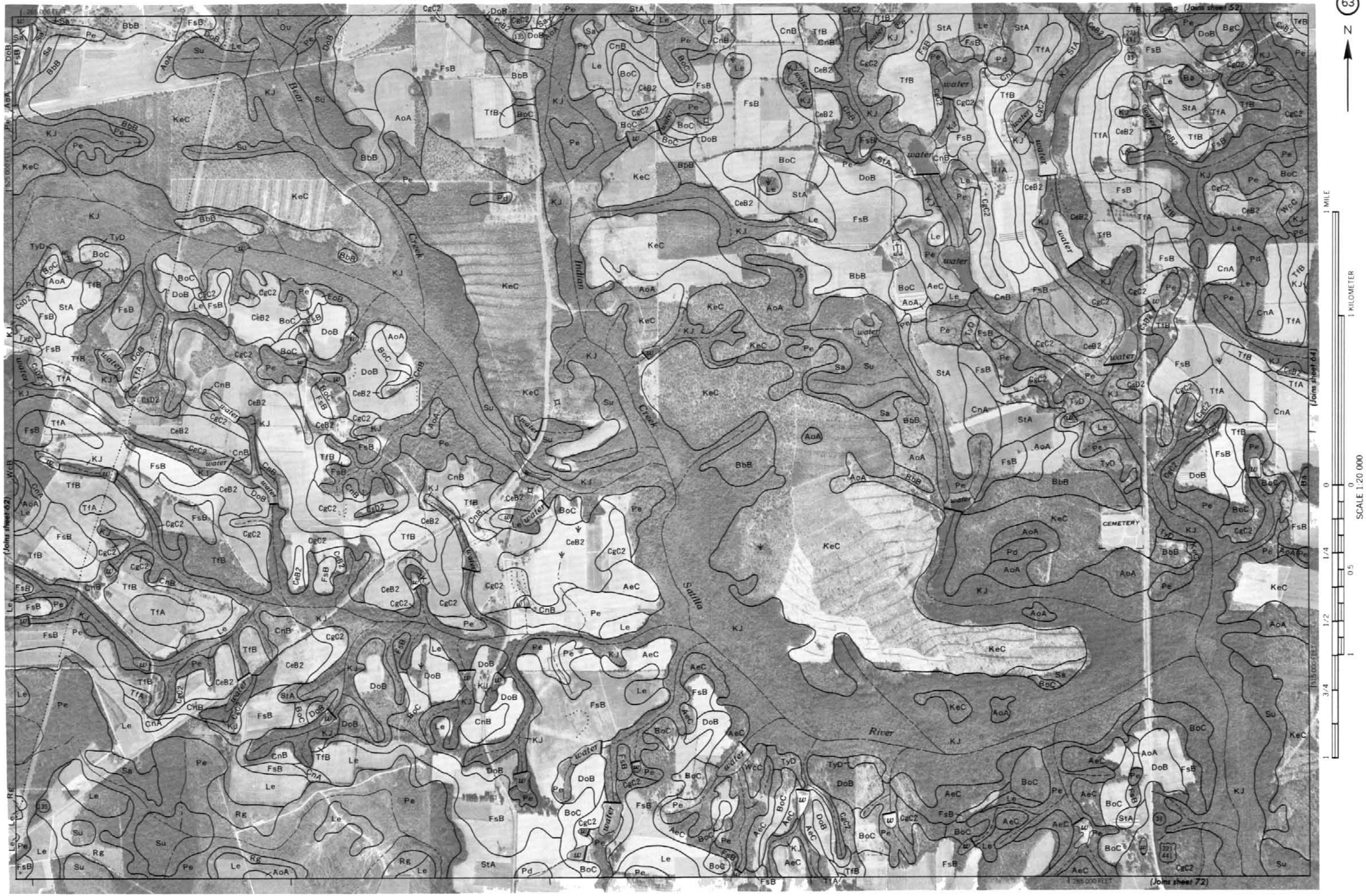

N
(Joins sheet 49)
(Joins sheet 61)
(Joins sheet 69)
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
BERRIEN COUNTY
Withlacoochee River
COFFEE COUNTY
ATKINSON COUNTY
215 000 FEET
water
OB
BoC
Pe
FsB
Le
CgC2
EoB
TfB
DoB
KJ
StA
CnA
Pd
AoA
Ba
TyD
CeB2
AeC
Su
TfA
WcC
BbB
ChB
Rg
w
90

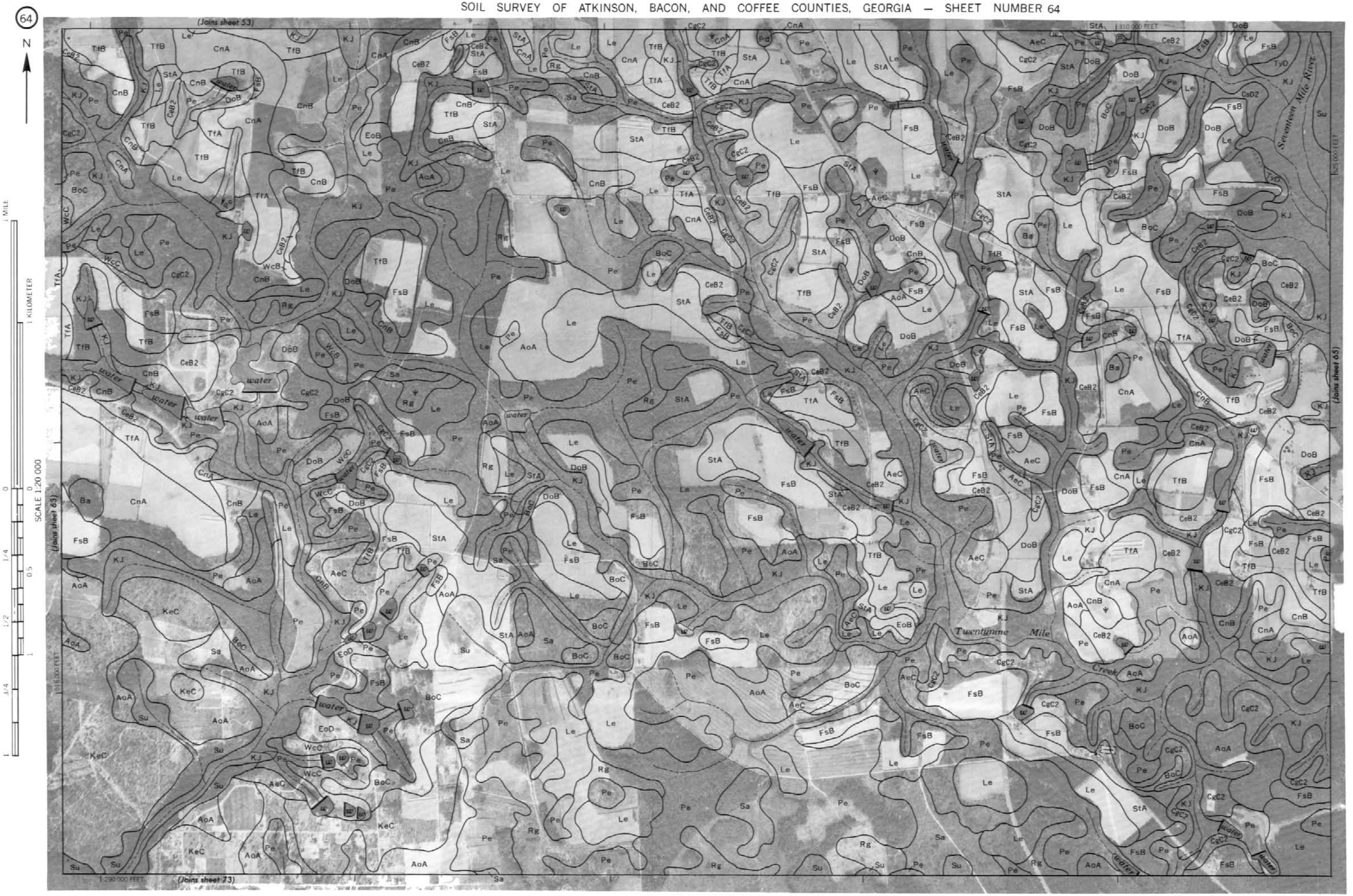
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 61



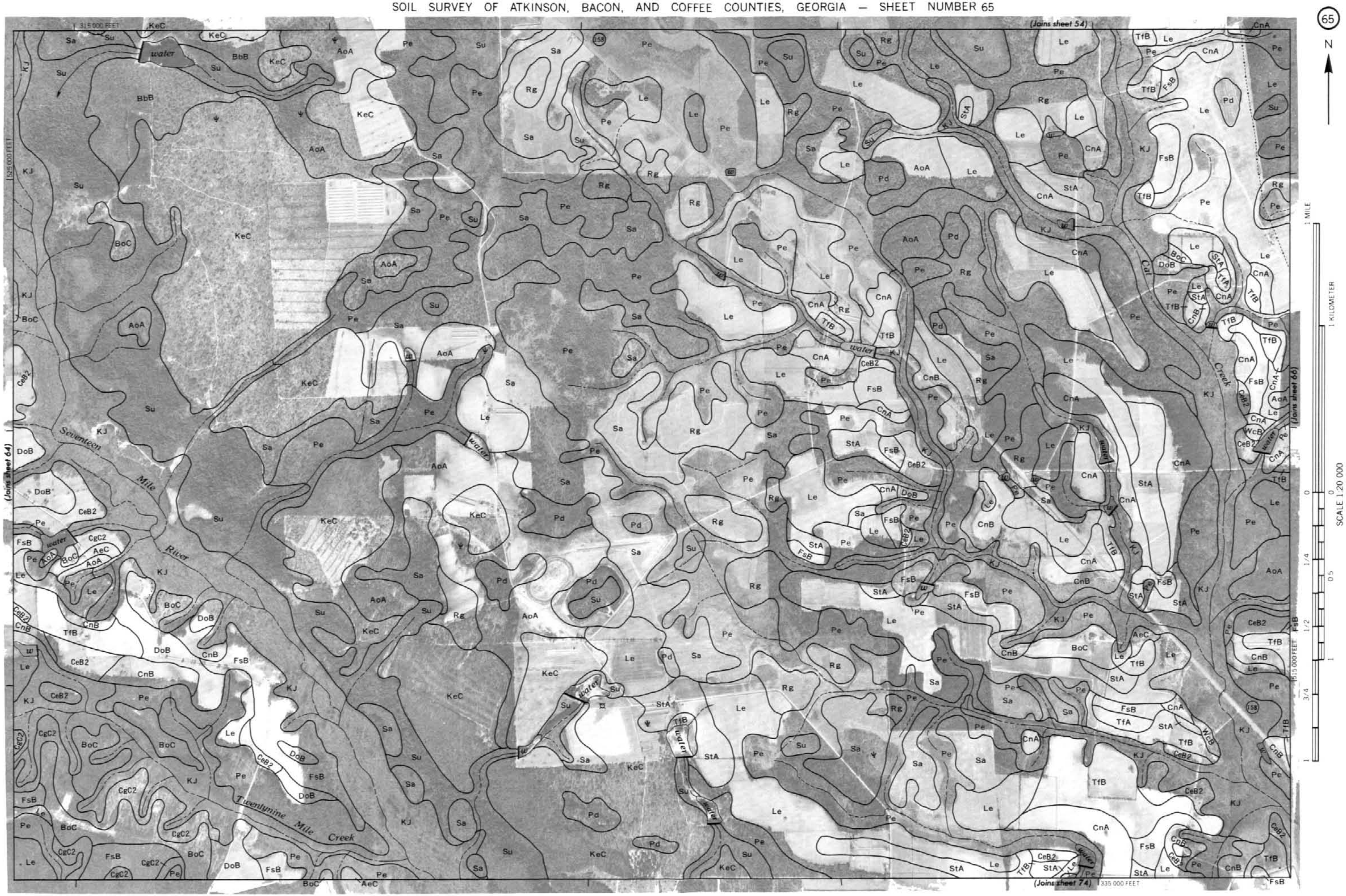
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 62



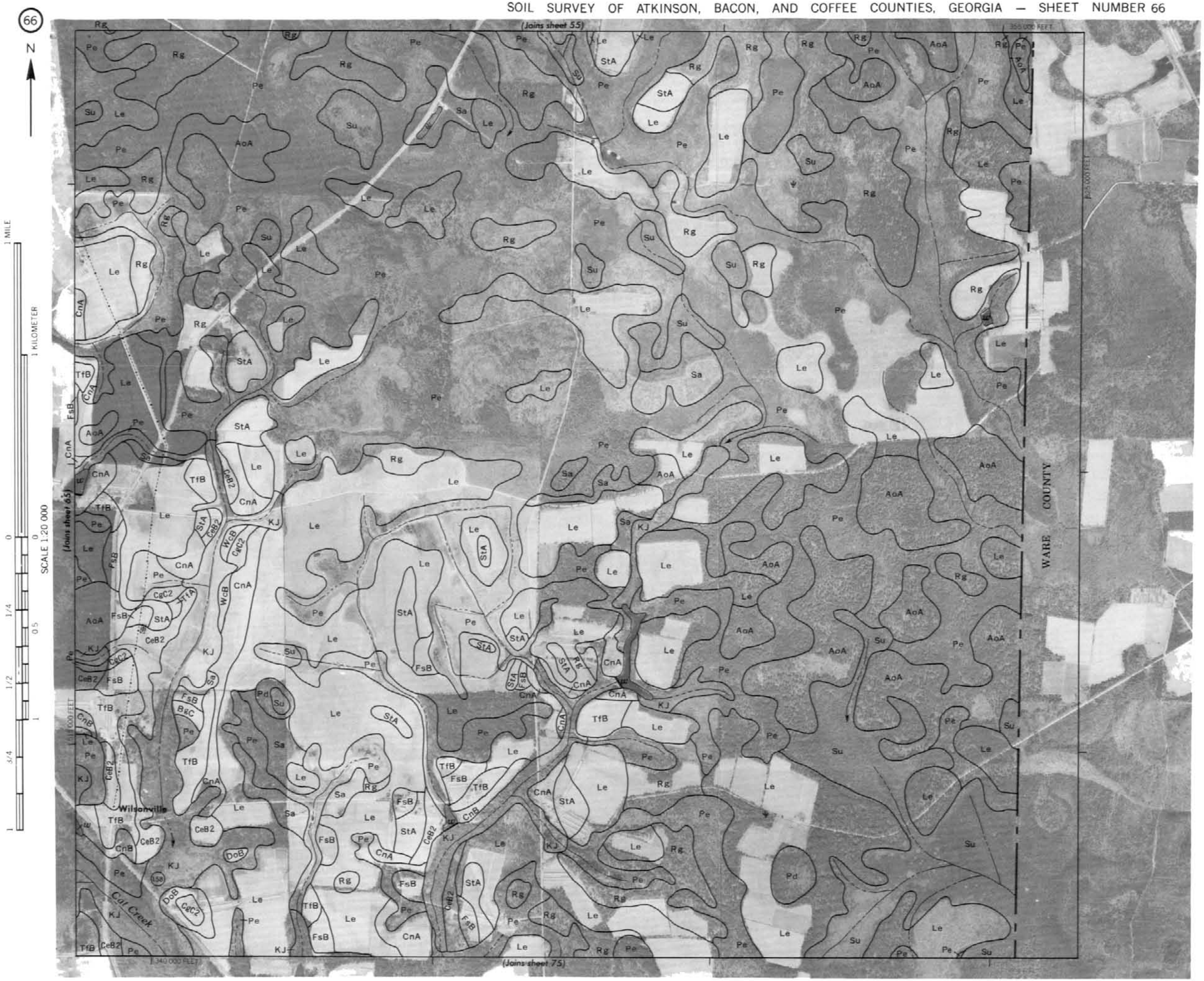

N
(Joins sheet 52)
(Joins sheet 62)
(Joins sheet 64)
(Joins sheet 72)
Bear Creek
Indian Creek
Satilla River
CEMETERY
water
265 000 FEET
525 000 FEET
515 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
KJ
KeC
Pe
Le
FsB
TfA
TfB
BoC
DoB
CeB2
CgC2
CnB
CnA
AoA
AeC
StA
BbB
Su
Sa
Rg
Pd
TyD
WcC
Ou
Ps

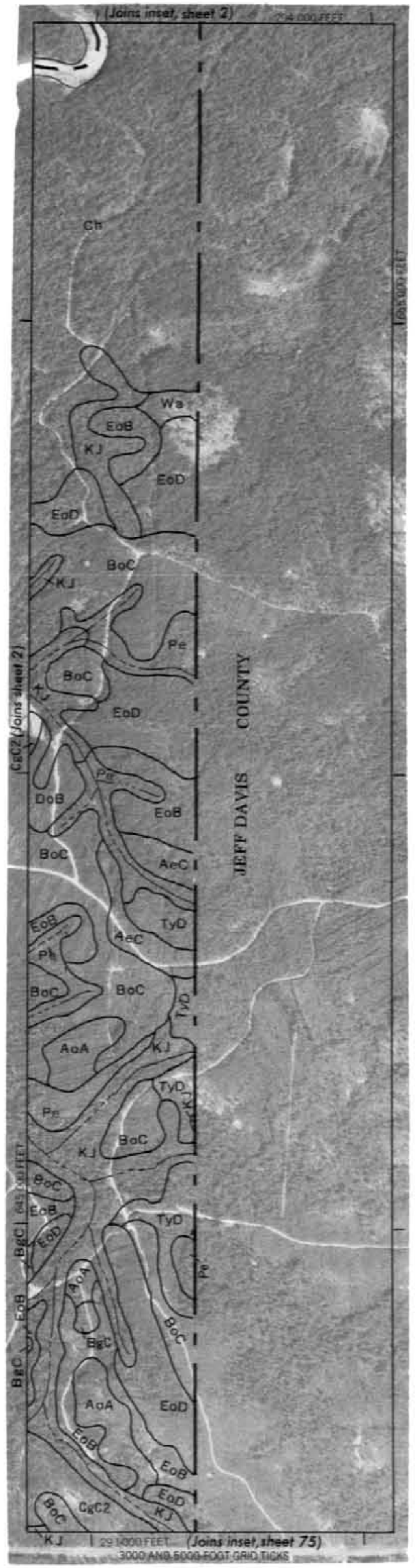

64
N
(Joins sheet 53)
(Joins sheet 63)
(Joins sheet 65)
(Joins sheet 73)
1 MILE
1 KILOMETER
SCALE 1:20 000
Seventeen Mile River
Twentymine Mile Creek
310 000 FEET
290 000 FEET

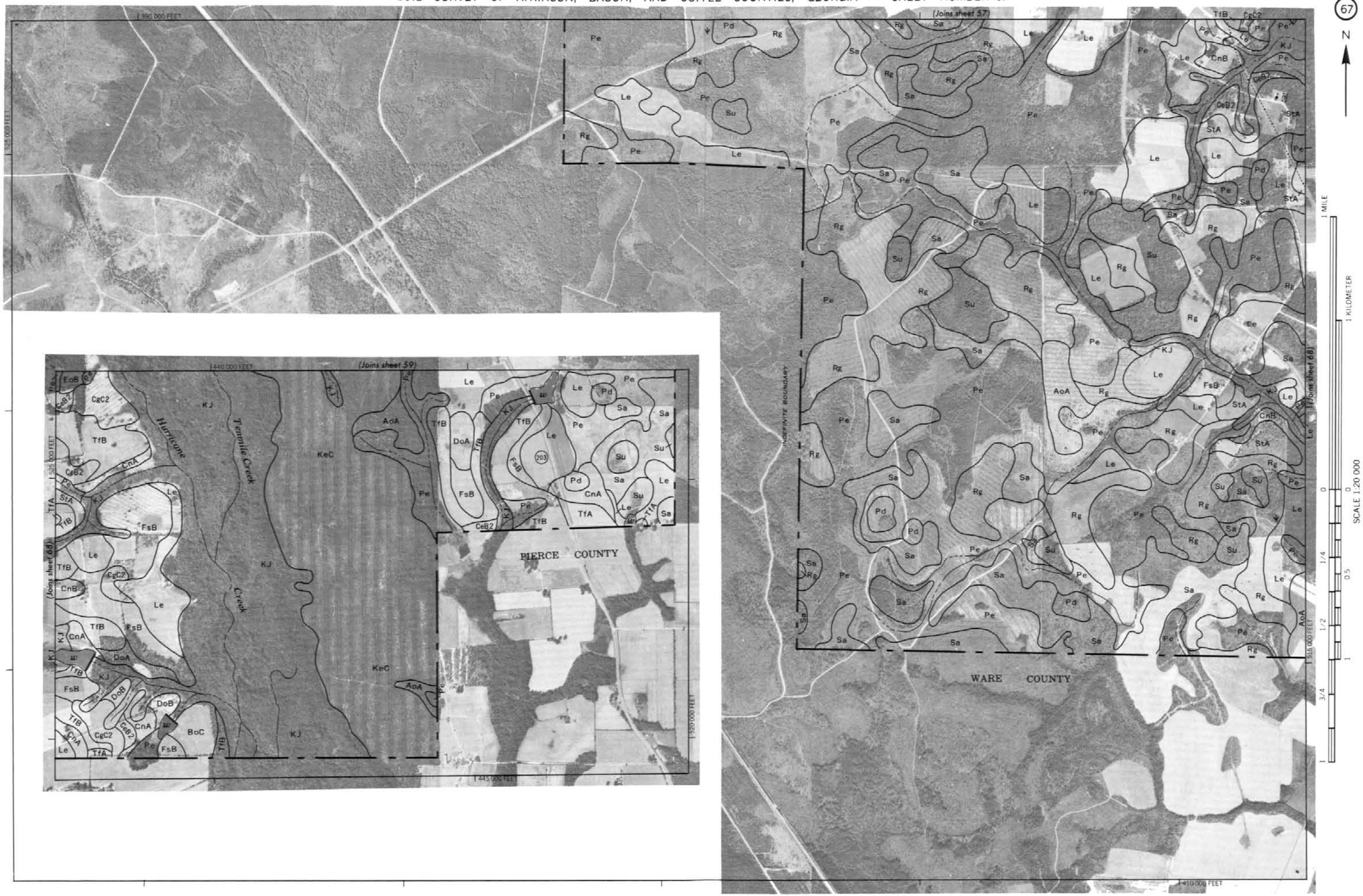
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 65

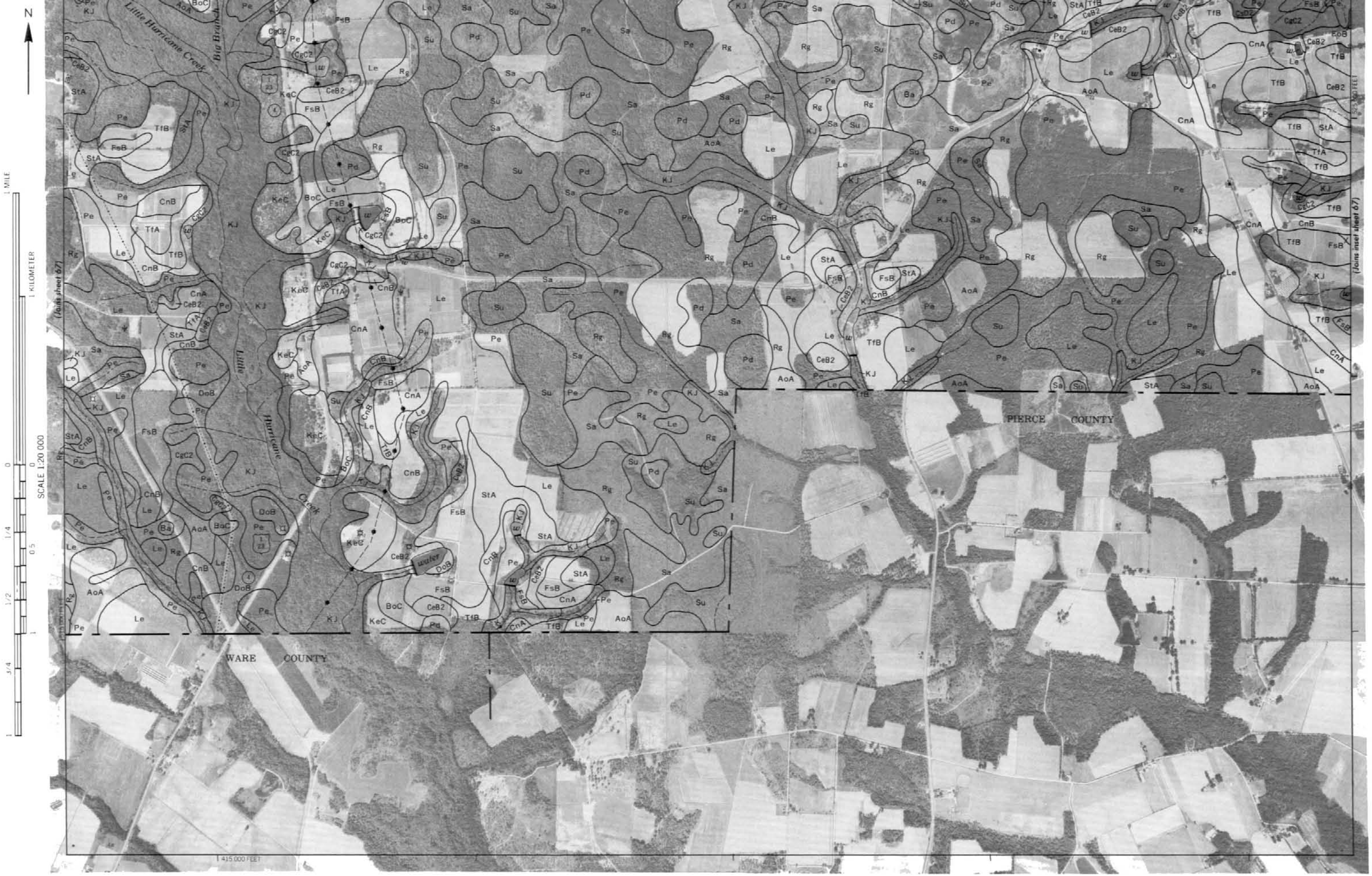


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 66

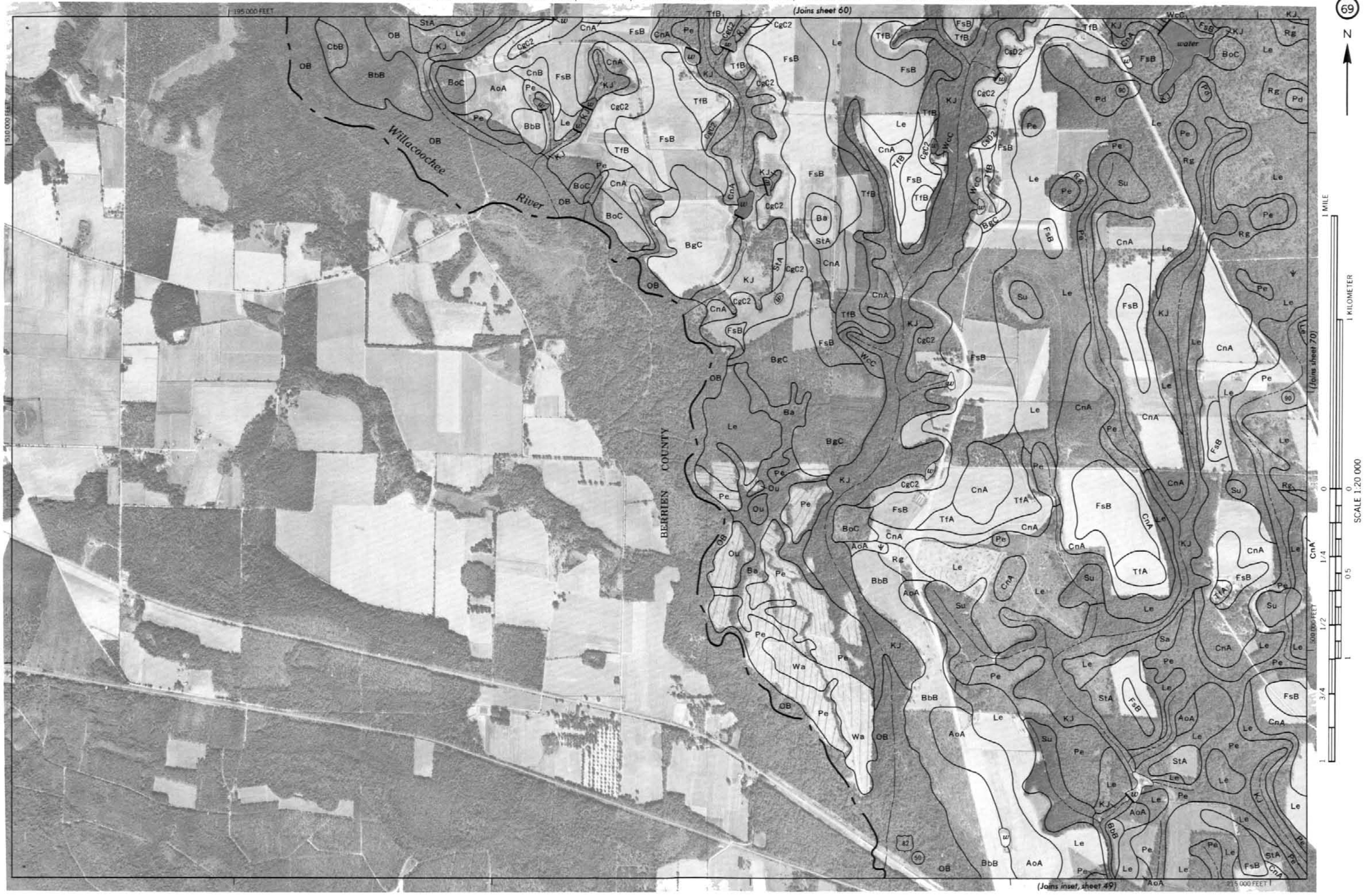


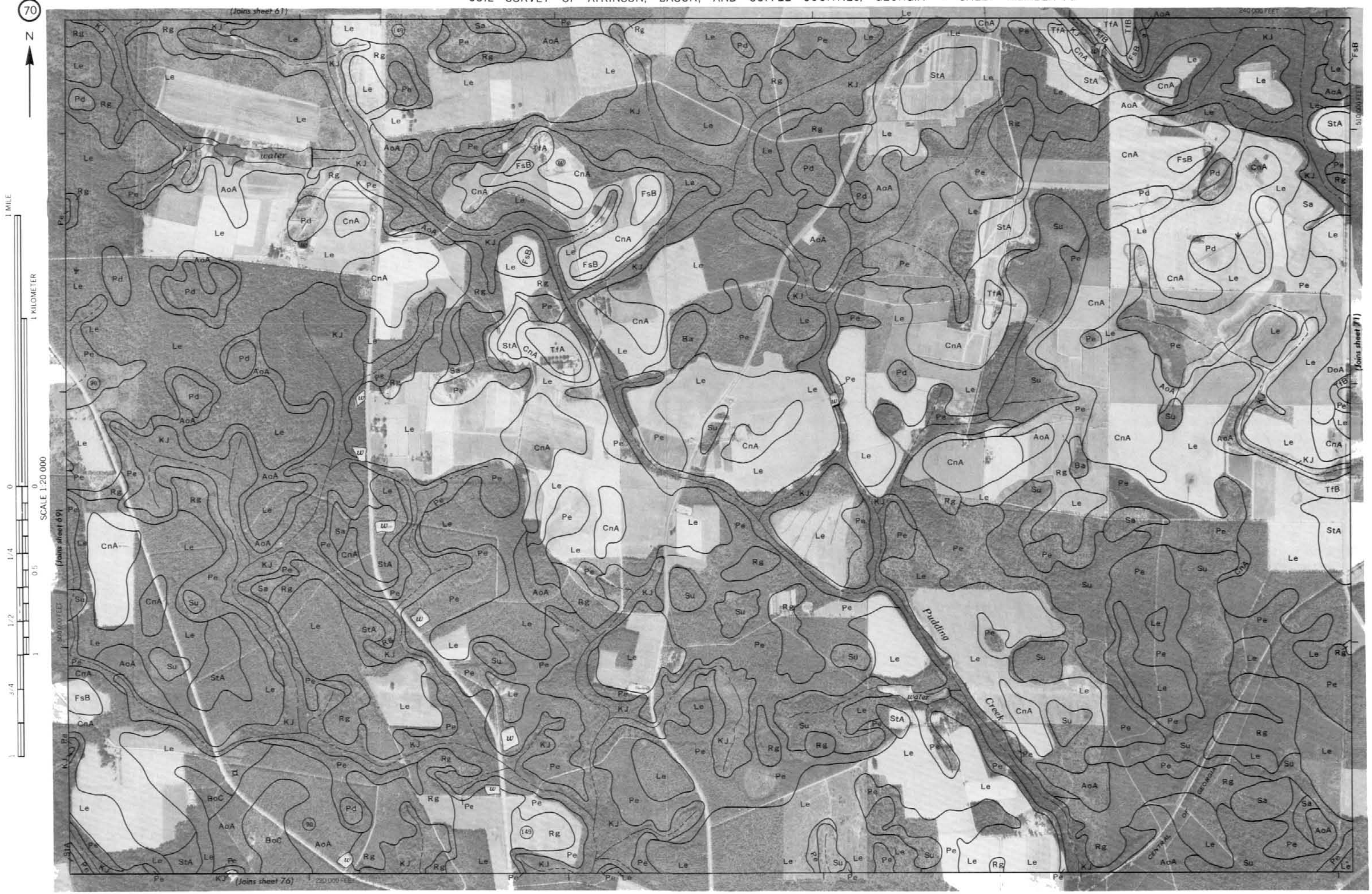



67
N
(Joins sheet 57)
(Joins sheet 59)
(Joins sheet 68)
390 000 FEET
525 000 FEET
440 000 FEET
445 000 FEET
520 000 FEET
515 000 FEET
410 000 FEET
INDEFINITE BOUNDARY
PIERCE COUNTY
WARE COUNTY
Hurricane
Tenmile Creek
Creek
203
Pe
Pd
Rg
Le
Su
Sa
Pe
TfB
CgC2
CnB
CeB2
StA
KJ
AoA
FsB
DoA
DoB
KeC
EoB
CnA
TfA
BoC
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5

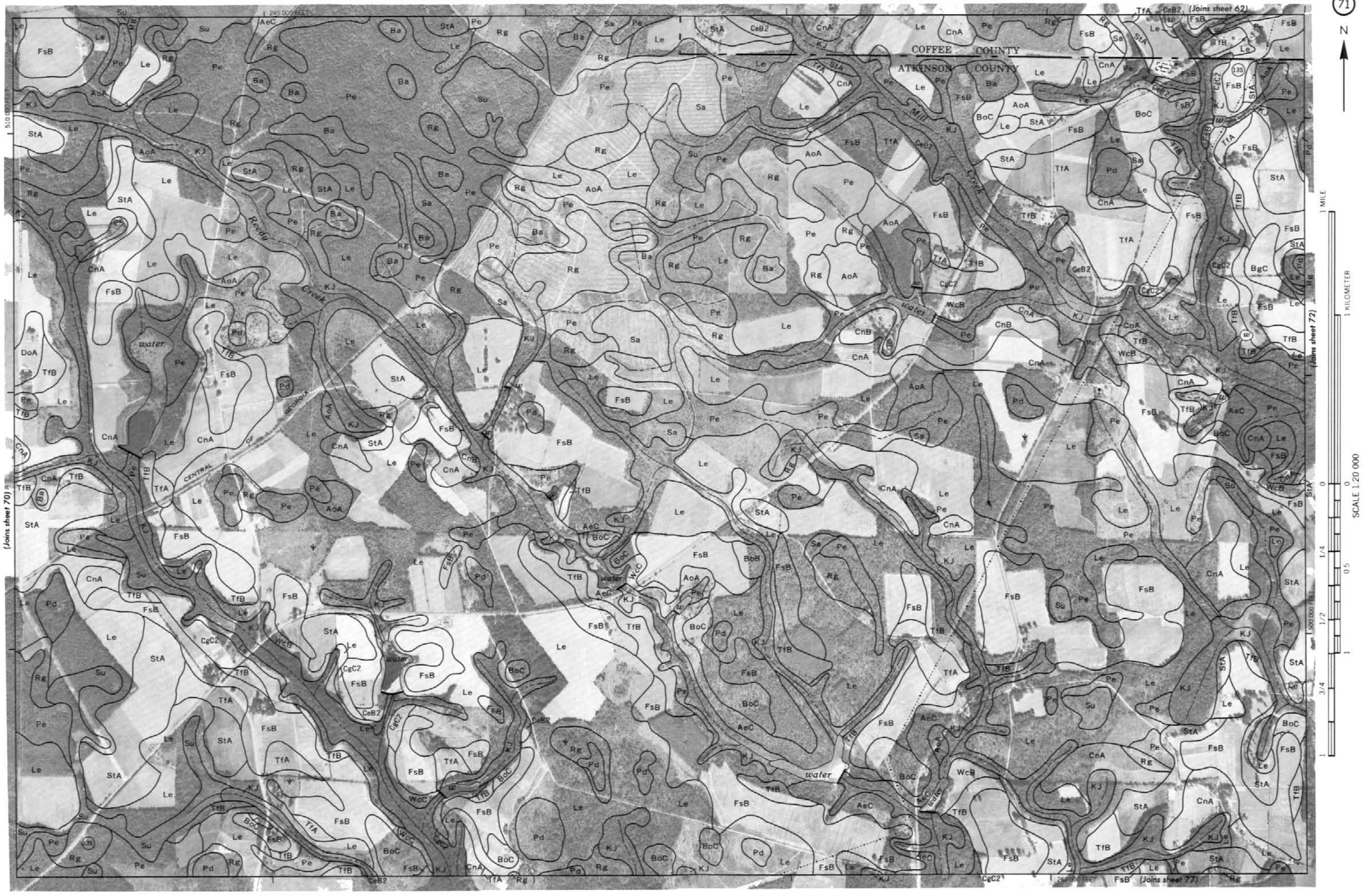

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
0.5
1/2
3/4
1
(Joins sheet 58)
(Joins sheet 67)
(Joins inset sheet 67)
415 000 FEET
Little Hurricane Creek
Big Branch
Little Hurricane Creek
WARE COUNTY
PIERCE COUNTY
23
water
w
AoA
Ba
BoC
CeB2
CgC2
CnA
CnB
DoB
FsB
KeC
KJ
Le
Pd
Pe
Rg
Sa
StA
Su
TfA
TfB

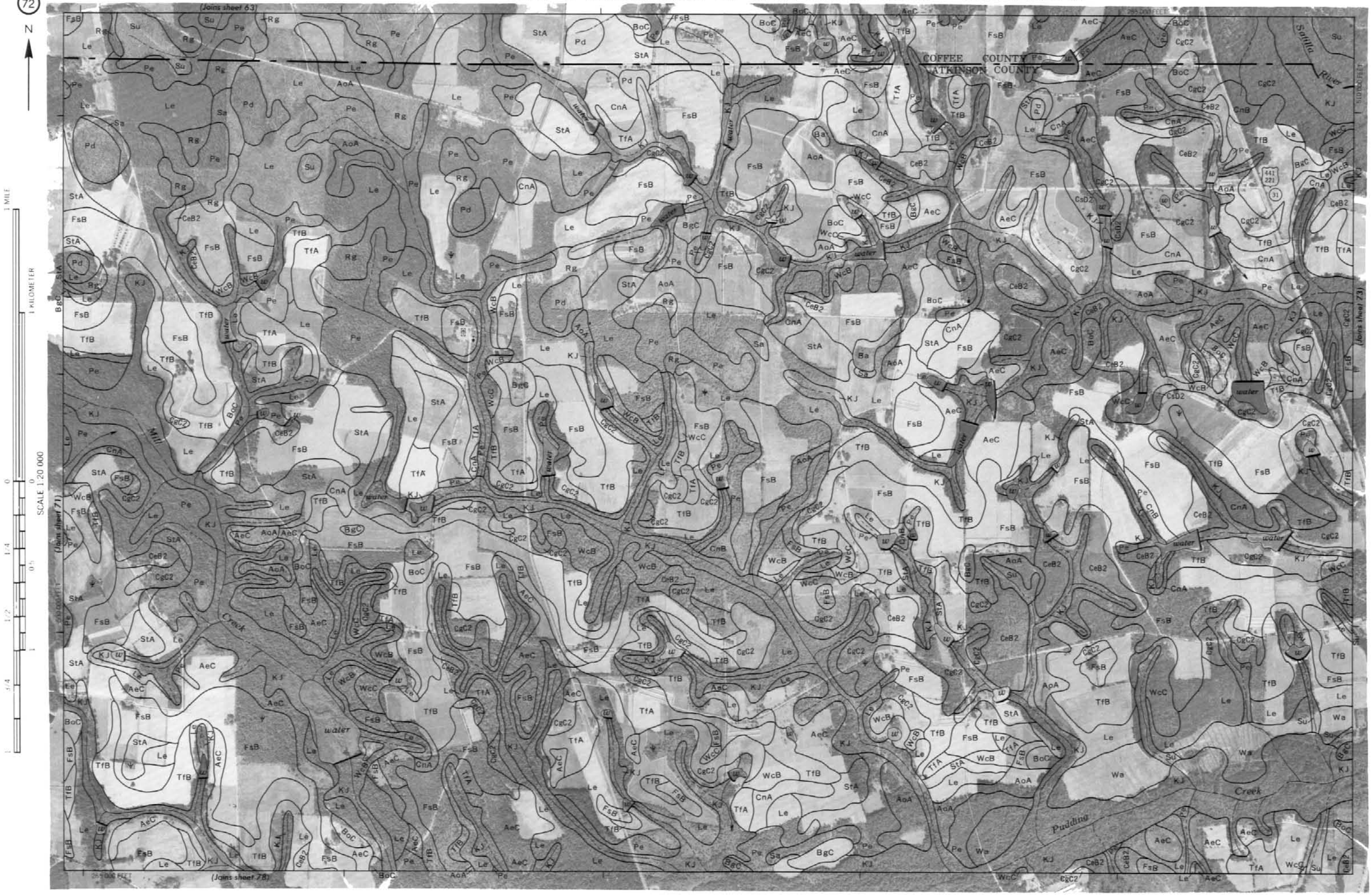
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 69



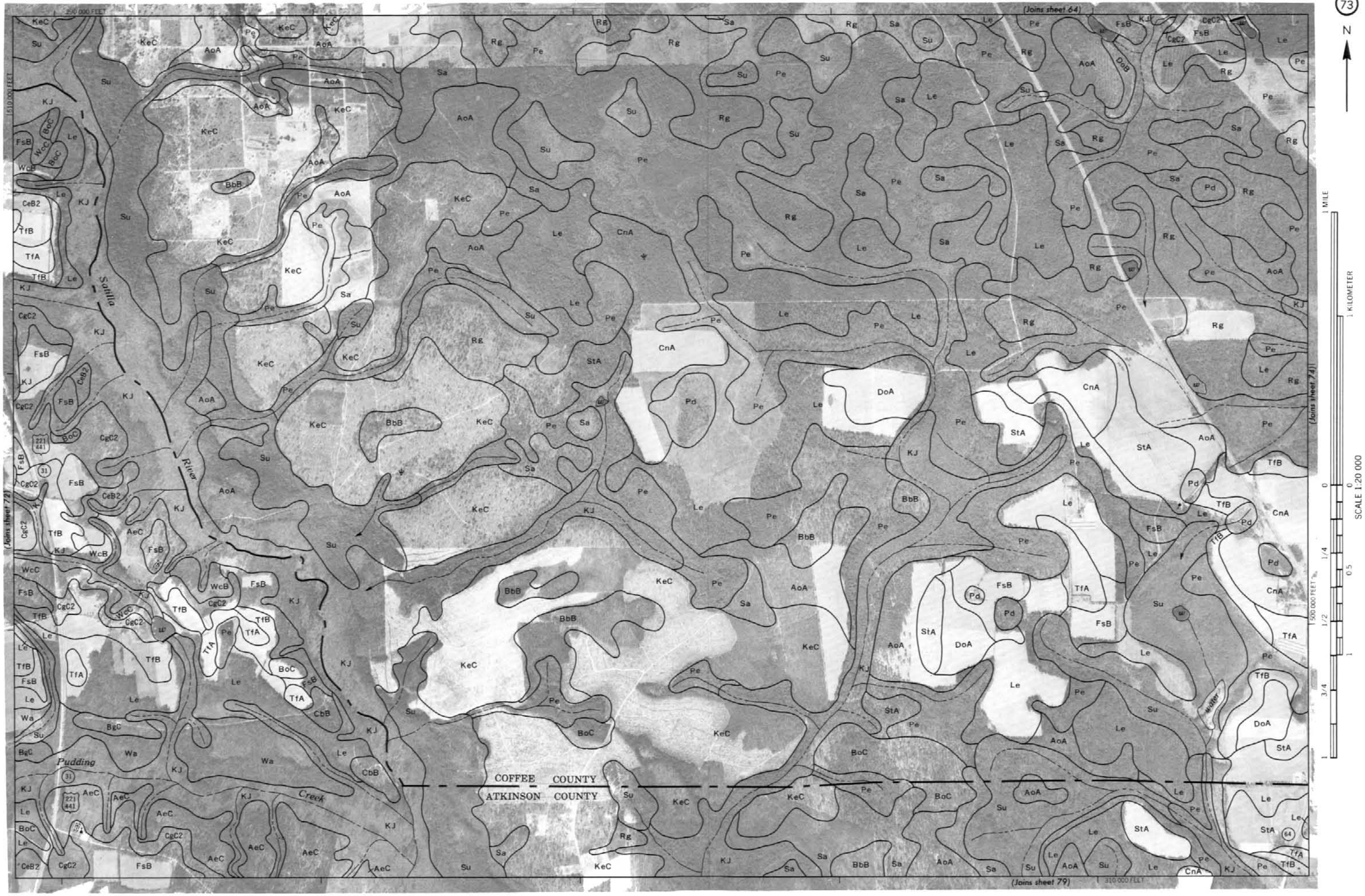

70
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
(Joins sheet 61)
(Joins sheet 71)
(Joins sheet 76)
(Joins sheet 69)
240 000 FEET
220 000 FEET
510 000 FEET
500 000 FEET
Pudding Creek
water
CENTRAL OF GEORGIA
90
149
w
AoA
Ba
BoC
CnA
DoA
FsB
KJ
Le
Pd
Pe
Rg
Sa
StA
Su
TfA
TfB

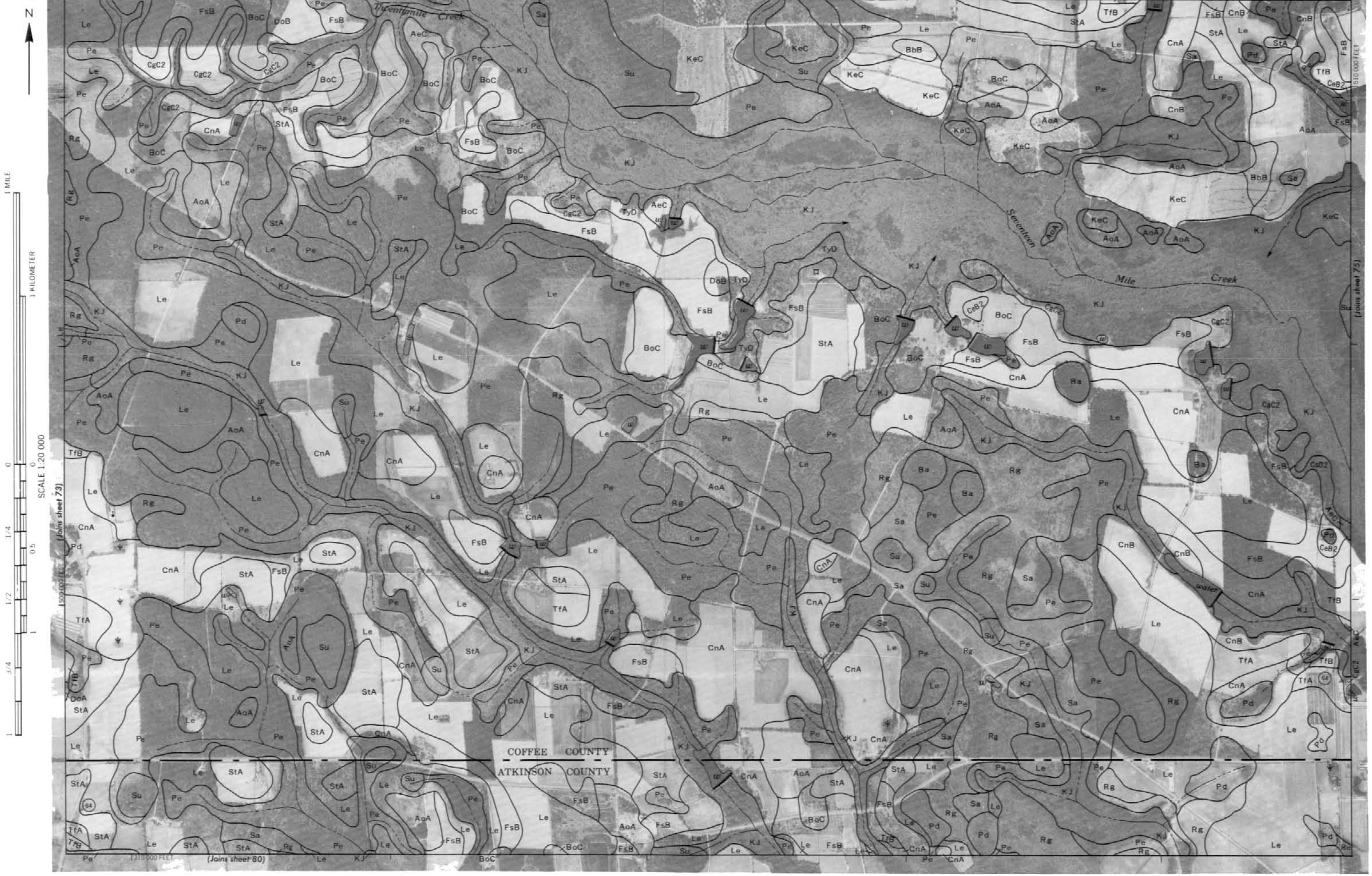
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 71

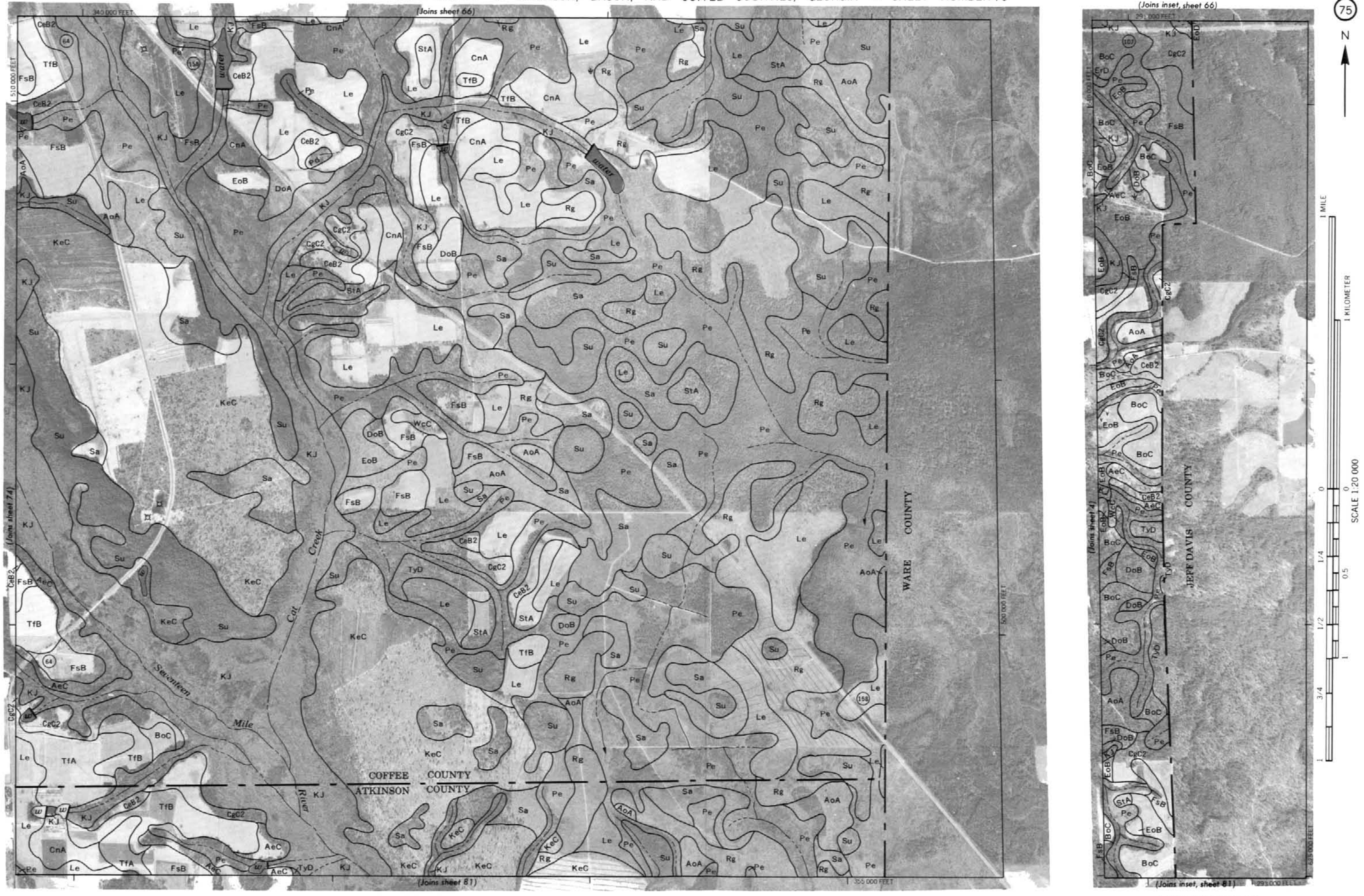


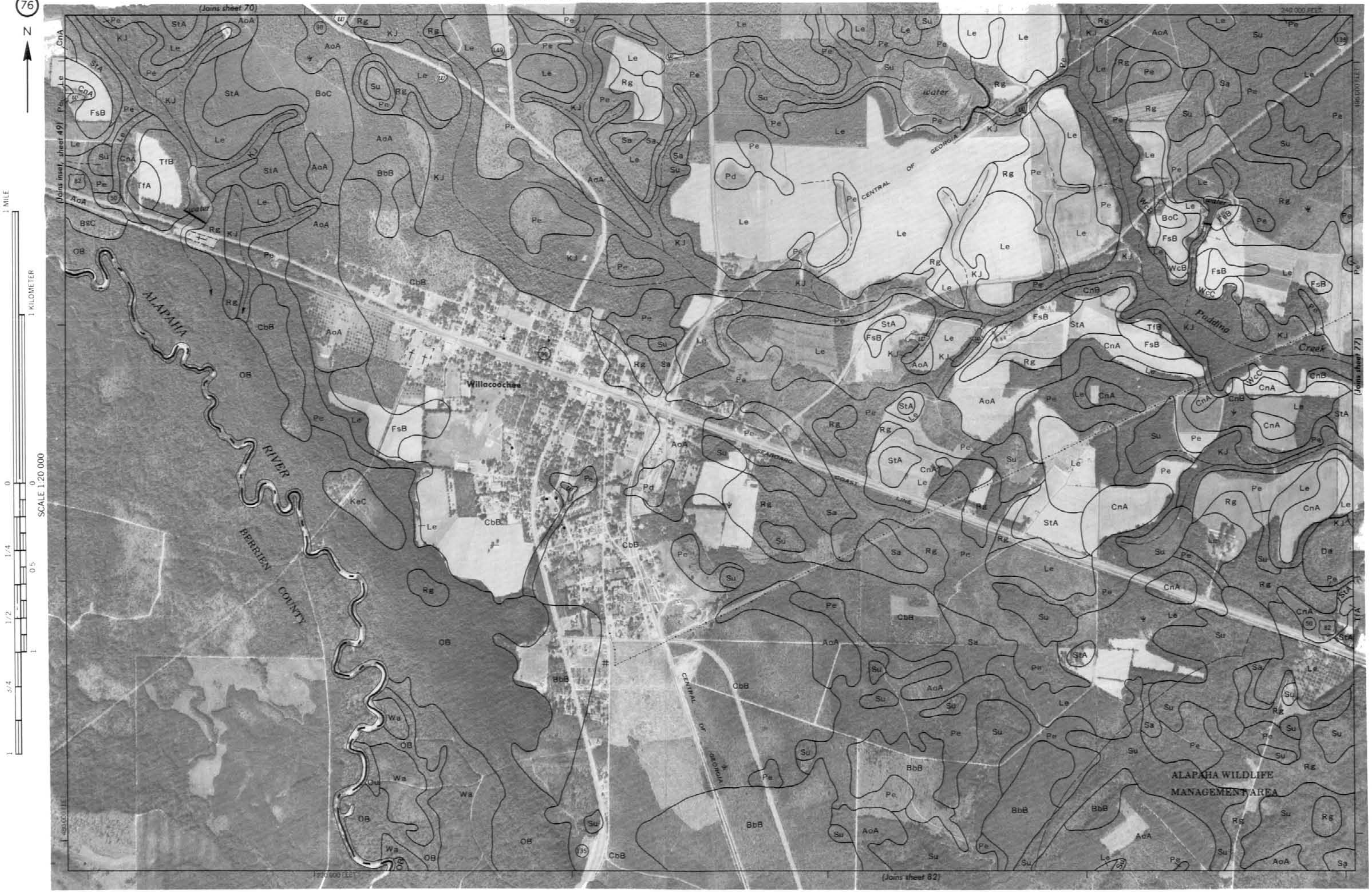

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
(Joins sheet 63)
(Joins sheet 71)
(Joins sheet 73)
(Joins sheet 78)
COFFEE COUNTY
ATKINSON COUNTY
Satilla River
Mill Creek
Pudding Creek
water
441
221
31

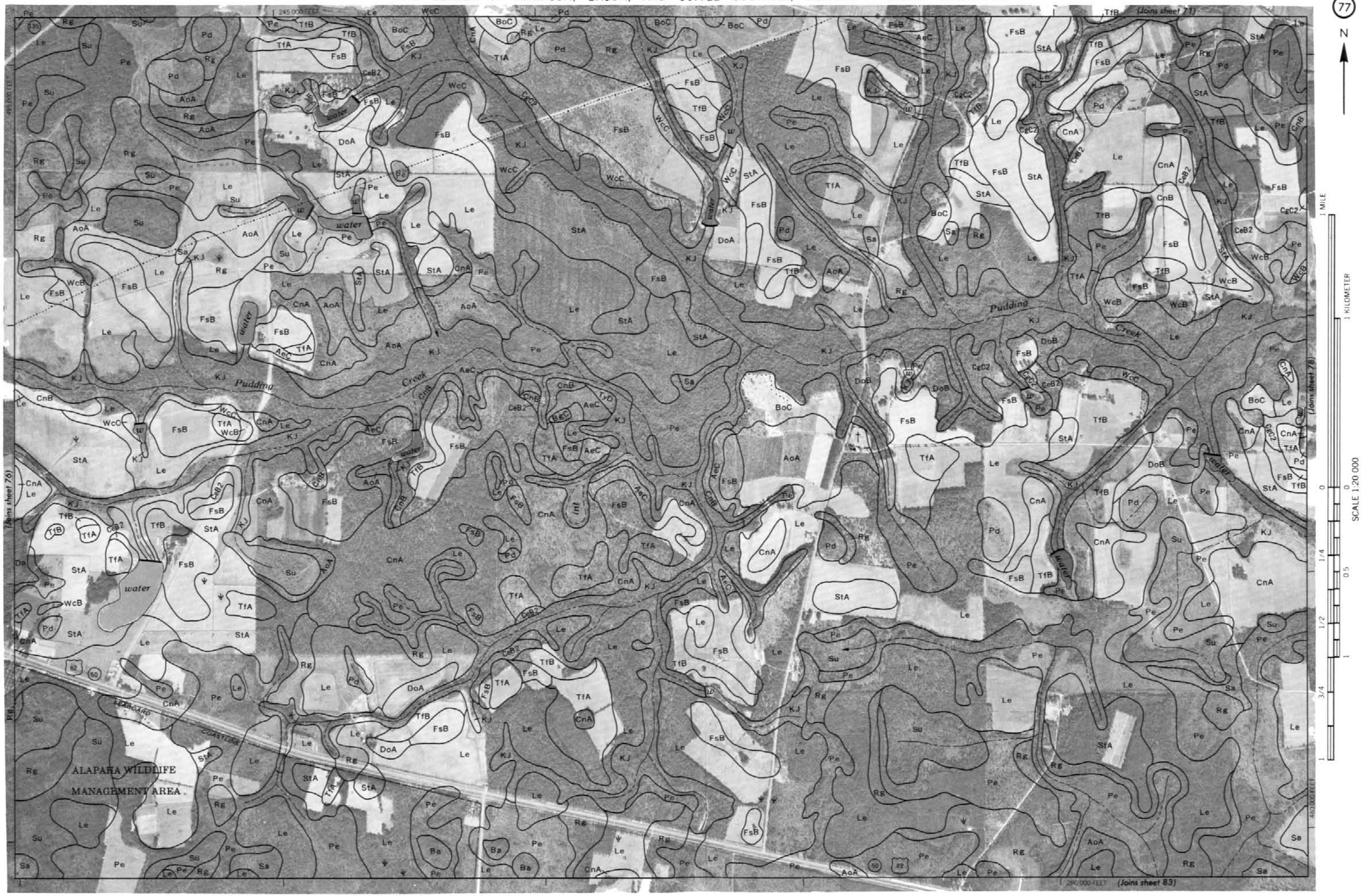
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 73

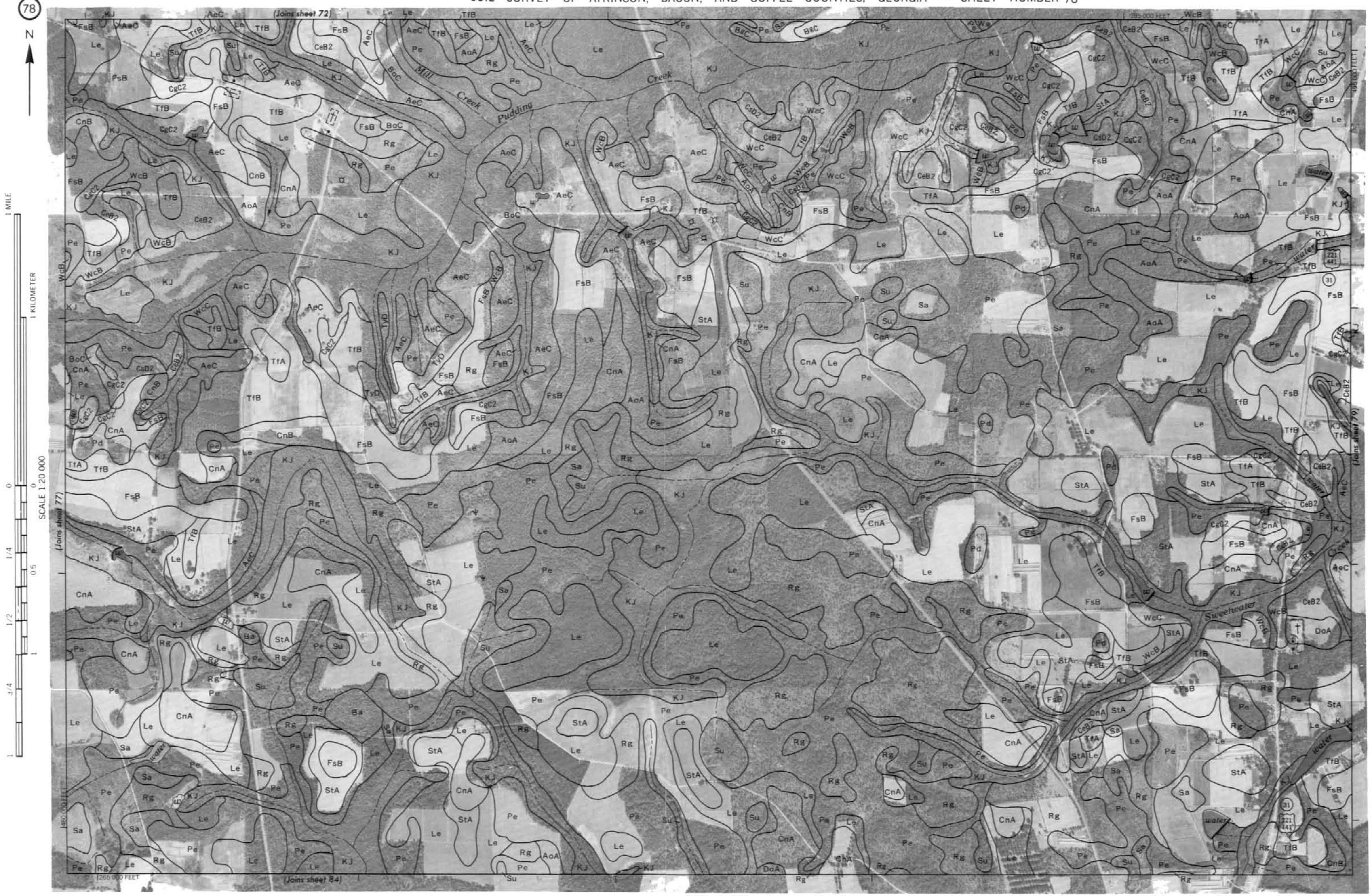



N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 65)
(Joins sheet 75)
(Joins sheet 73)
(Joins sheet 80)
335 000 FEET
510 000 FEET
500 000 FEET
315 000 FEET
Twentymile Creek
Seventeen Mile Creek
COFFEE COUNTY
ATKINSON COUNTY
water
64
Le
Pe
FsB
BoC
DoB
AeC
CgC2
CnA
StA
Rg
AoA
KJ
Su
KeC
Sa
BbB
CnB
TfB
TfA
Pd
CeB2
TyD
Ba
Sa
CsD2
DoA
w

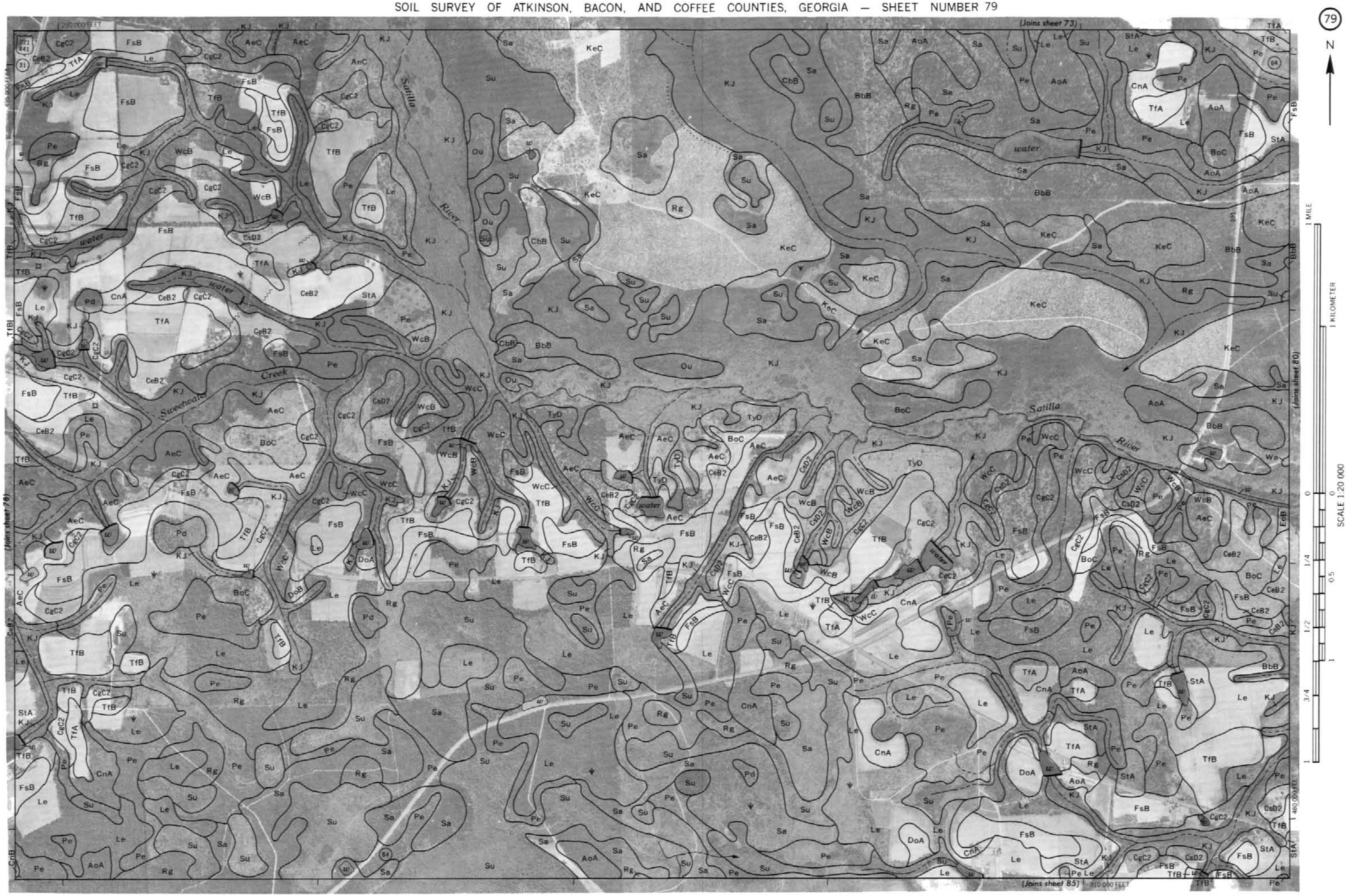

(Joins sheet 66)
340 000 FEET
510 000 FEET
(Joins sheet 74)
(Joins sheet 81)
355 000 FEET
500 000 FEET
Cat Creek
Seventeen Mile River
COFFEE COUNTY
ATKINSON COUNTY
WARE COUNTY
(Joins inset, sheet 66)
(Joins inset, sheet 81)
(Joins sheet 4)
JEFF DAVIS COUNTY
293 000 FEET
635 000 FEET
75
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
2000 AND 5000-FOOT GRID TICKS
water
64
158
107
AoA
AeC
BoC
CeB2
CgC2
CnA
DoA
DoB
EoB
ErD
FsB
KeC
KJ
Le
Pe
Rg
Sa
StA
Su
TfA
TfB
TyD
WcC


N
(Joins sheet 70)
(Joins inset, sheet 49)
(Joins sheet 77)
(Joins sheet 82)
240 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
Willacoochee
ALAPAHA RIVER
BERRIEN COUNTY
Pudding Creek
CENTRAL OF GEORGIA
SEABOARD COAST LINE
ALAPAHA WILDLIFE MANAGEMENT AREA
water
82
50
135
149
AoA
BbB
BoC
CbB
CnA
CnB
Da
FsB
KeC
KJ
Le
OB
Pd
Pe
Rg
Sa
StA
Su
TfA
TfB
Wa
WcB
WcC

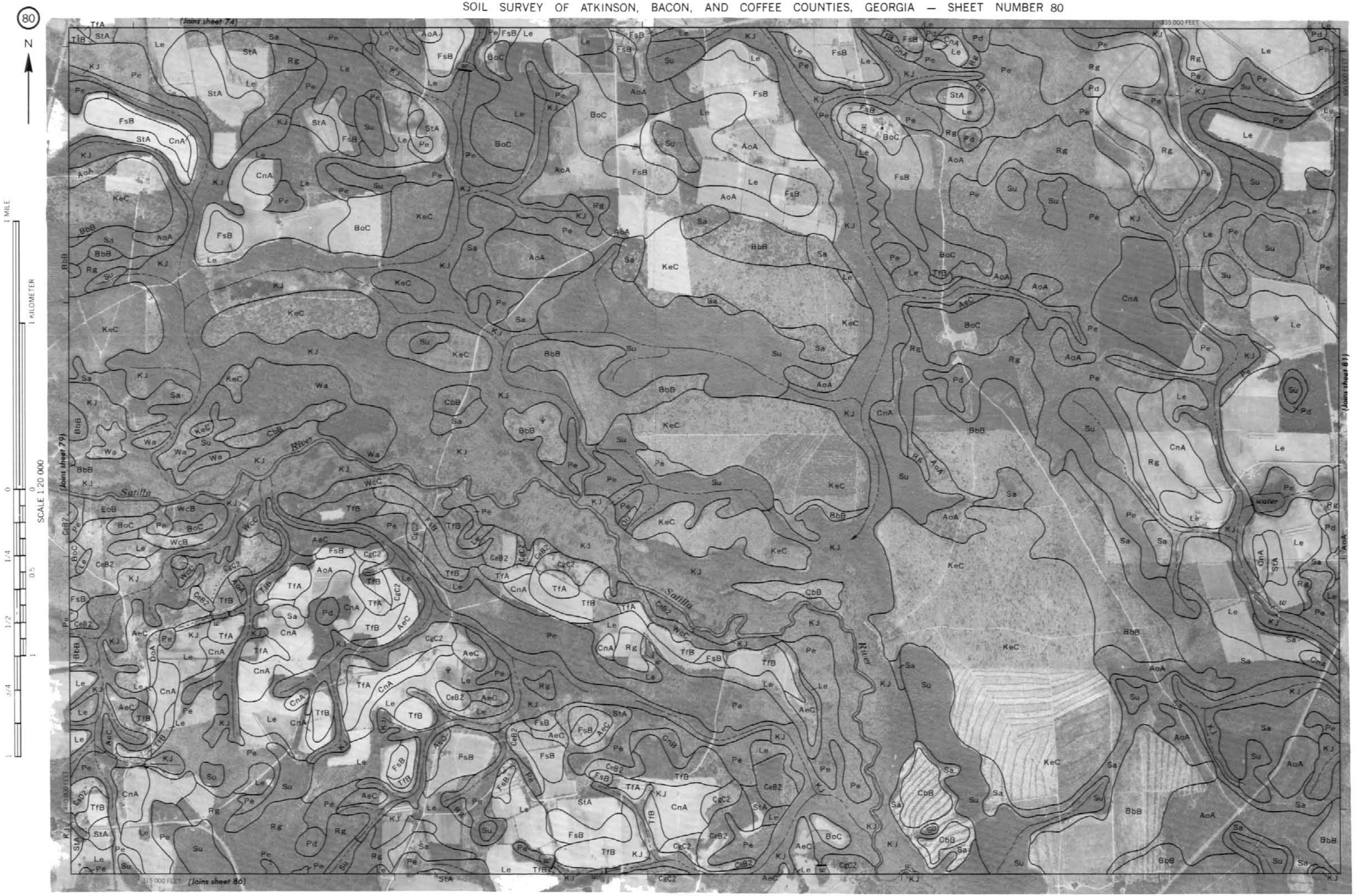

77
N
(Joins sheet 71)
(Joins sheet 76)
(Joins sheet 78)
(Joins sheet 83)
245 000 FEET
280 000 FEET
495 000 FEET
480 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
Pudding Creek
Pudding Creek
ALAPAHA WILDLIFE MANAGEMENT AREA
SEABOARD COASTLINE
water
w
AeC
AoA
Ba
BoC
CeB2
CgC2
CnA
CnB
Da
DoA
DoB
FsB
KJ
Le
Pd
Pe
Rg
Sa
StA
Su
TfA
TfB
TyD
WcB
WcC
Int
135
82
50


N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 72)
(Joins sheet 77)
(Joins sheet 79)
(Joins sheet 84)
285 000 FEET
265 000 FEET
480 000 FEET
Mill Creek
Pudding Creek
Sweetwater Creek
water
221
441
31

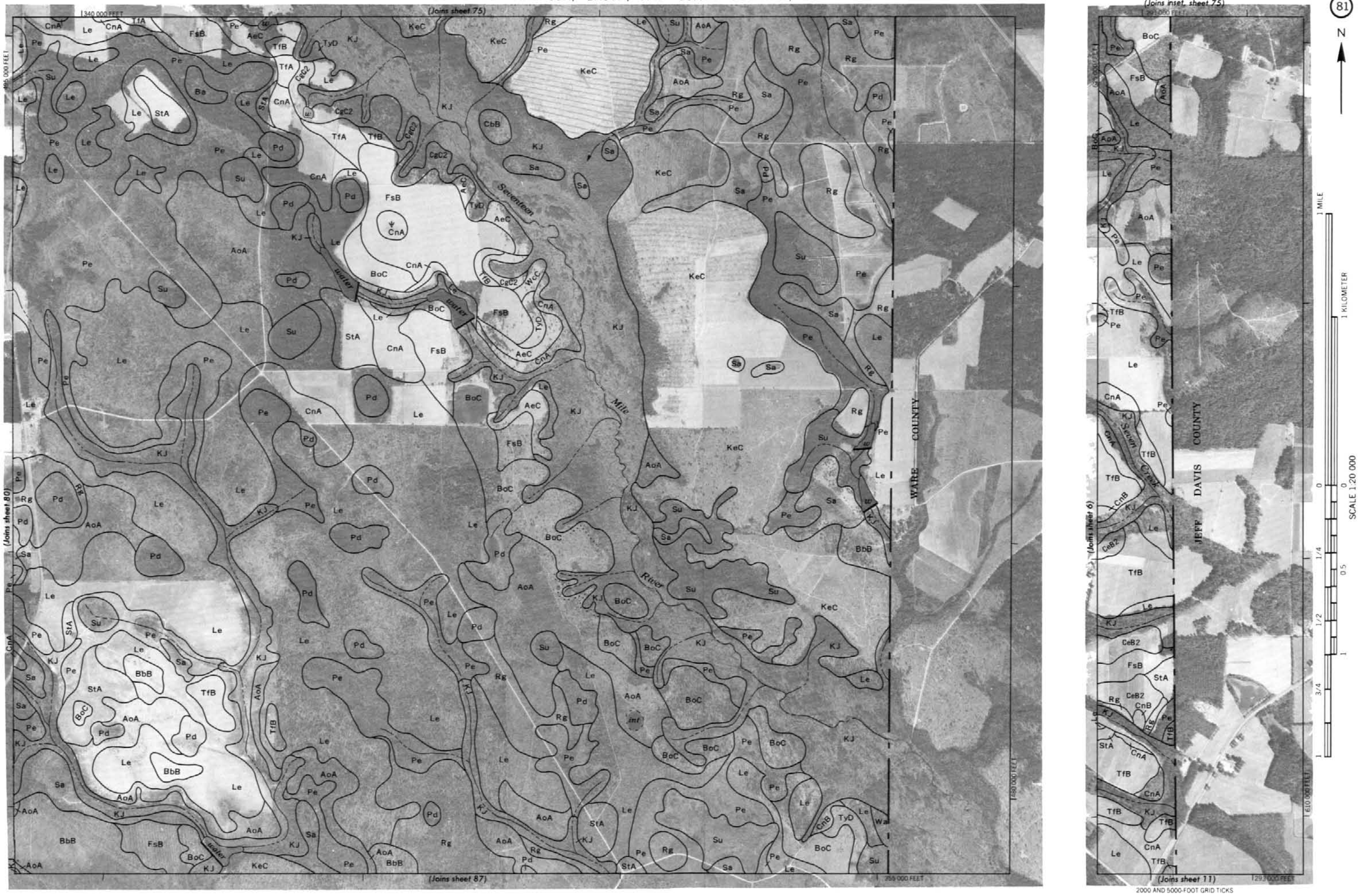
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 79

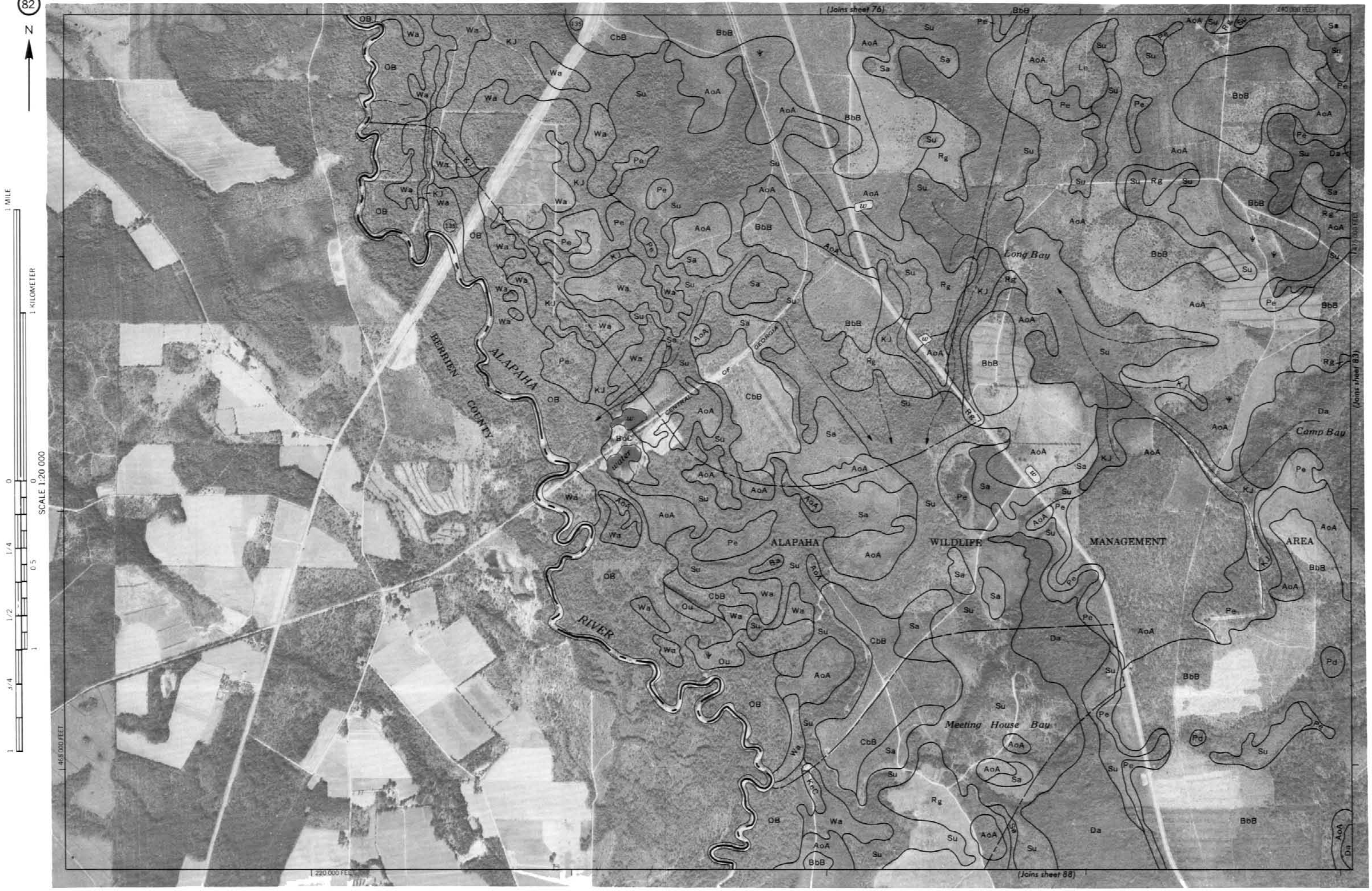


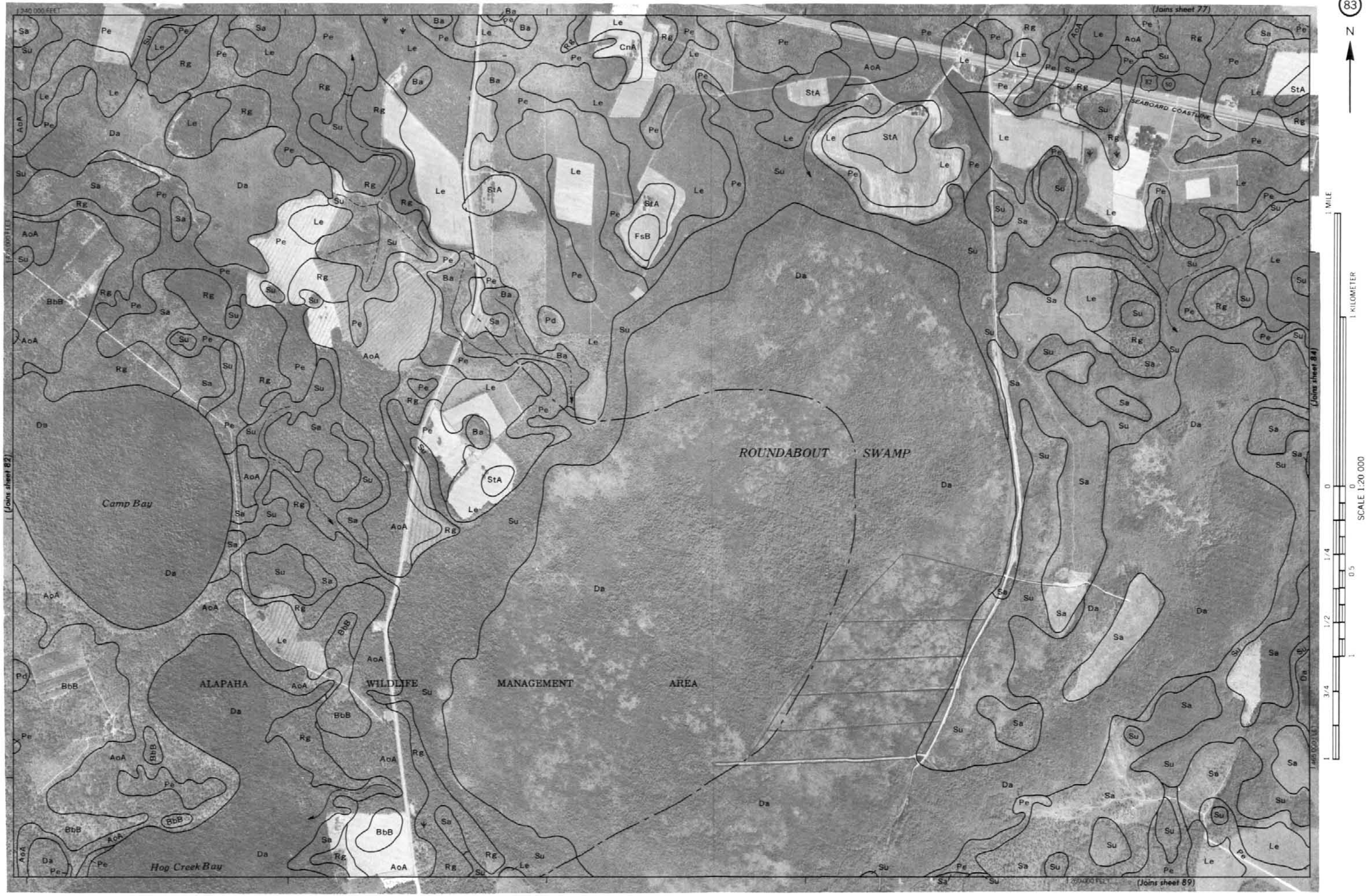
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 80

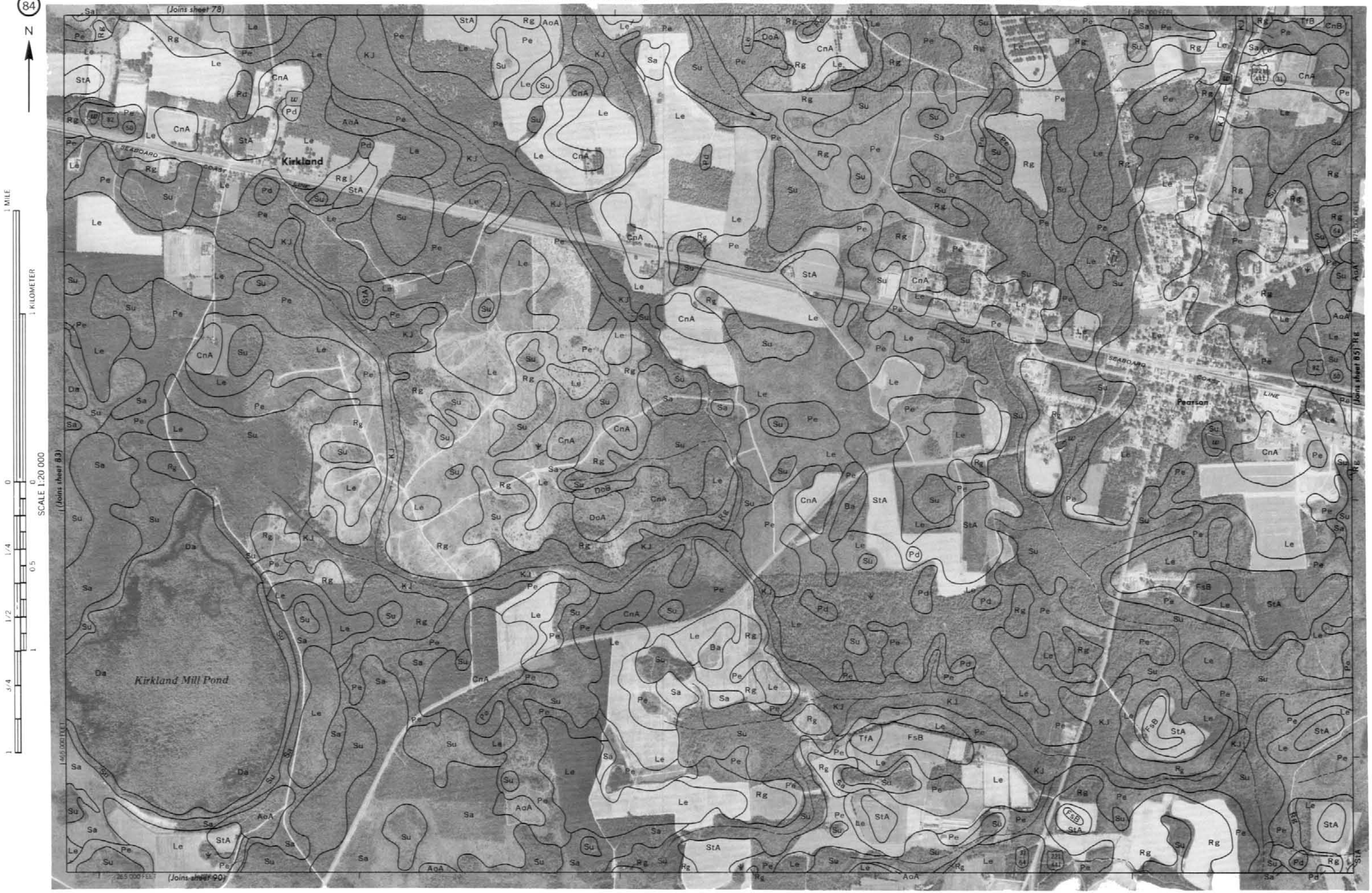


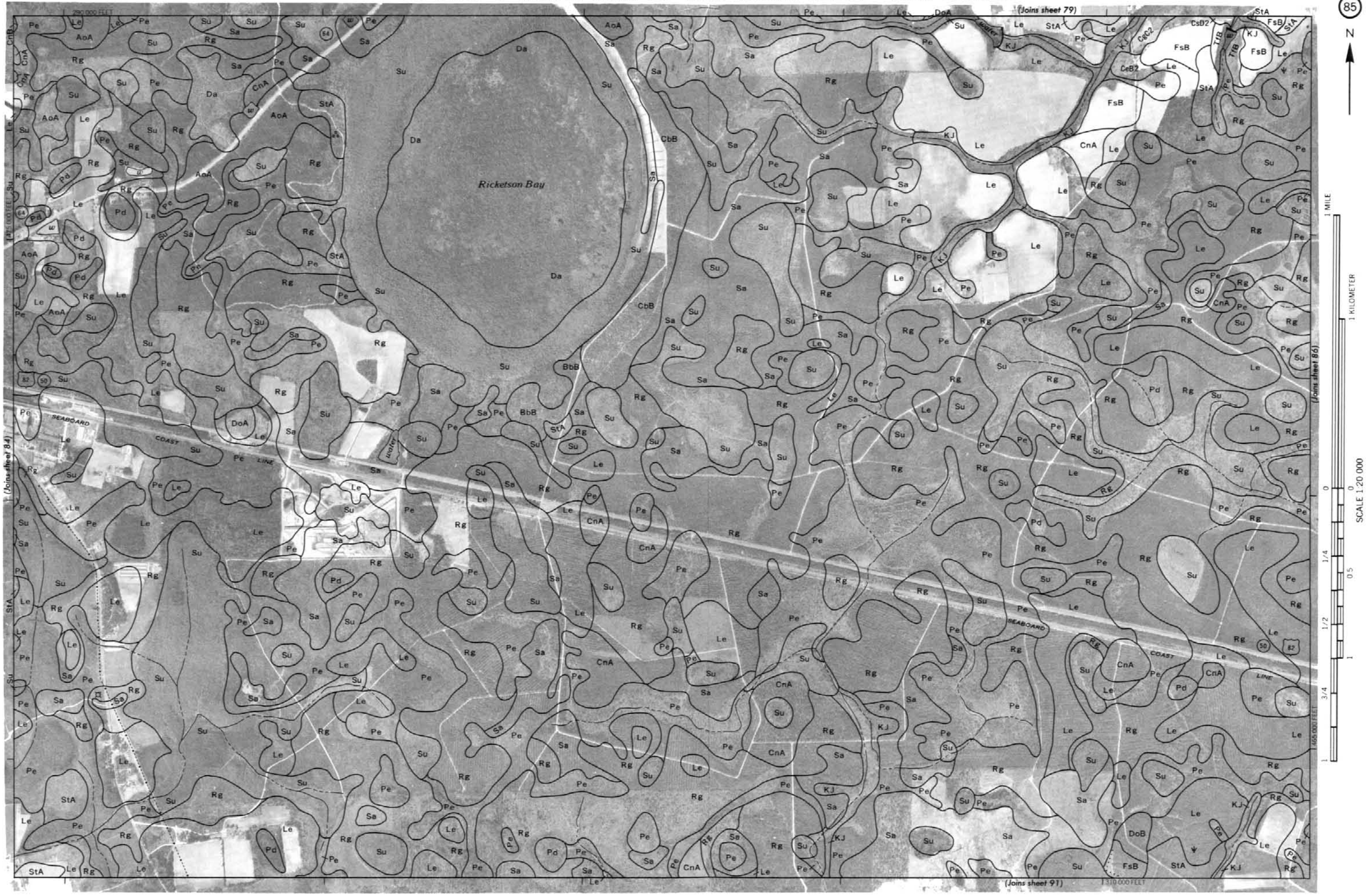
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 81

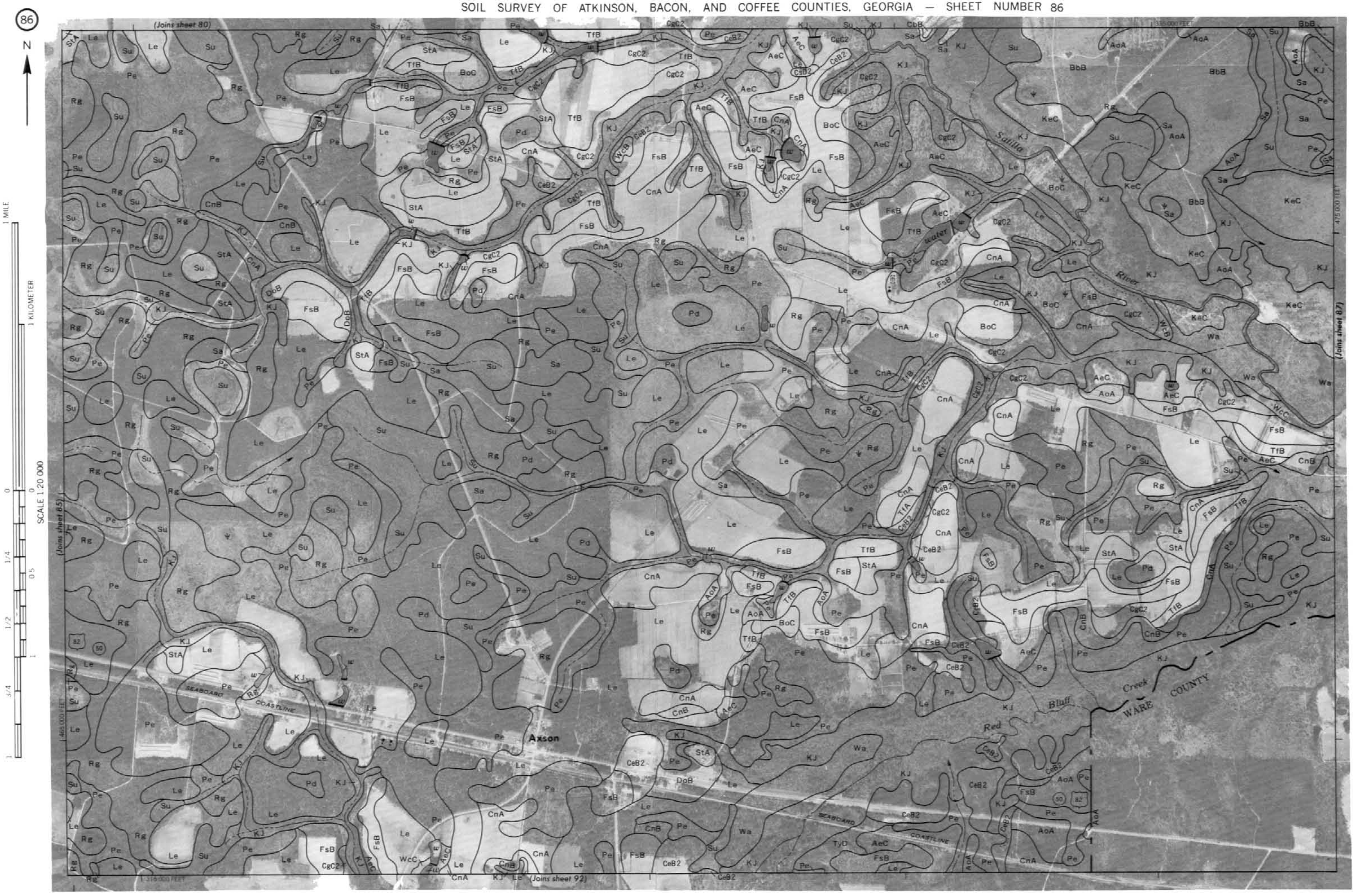


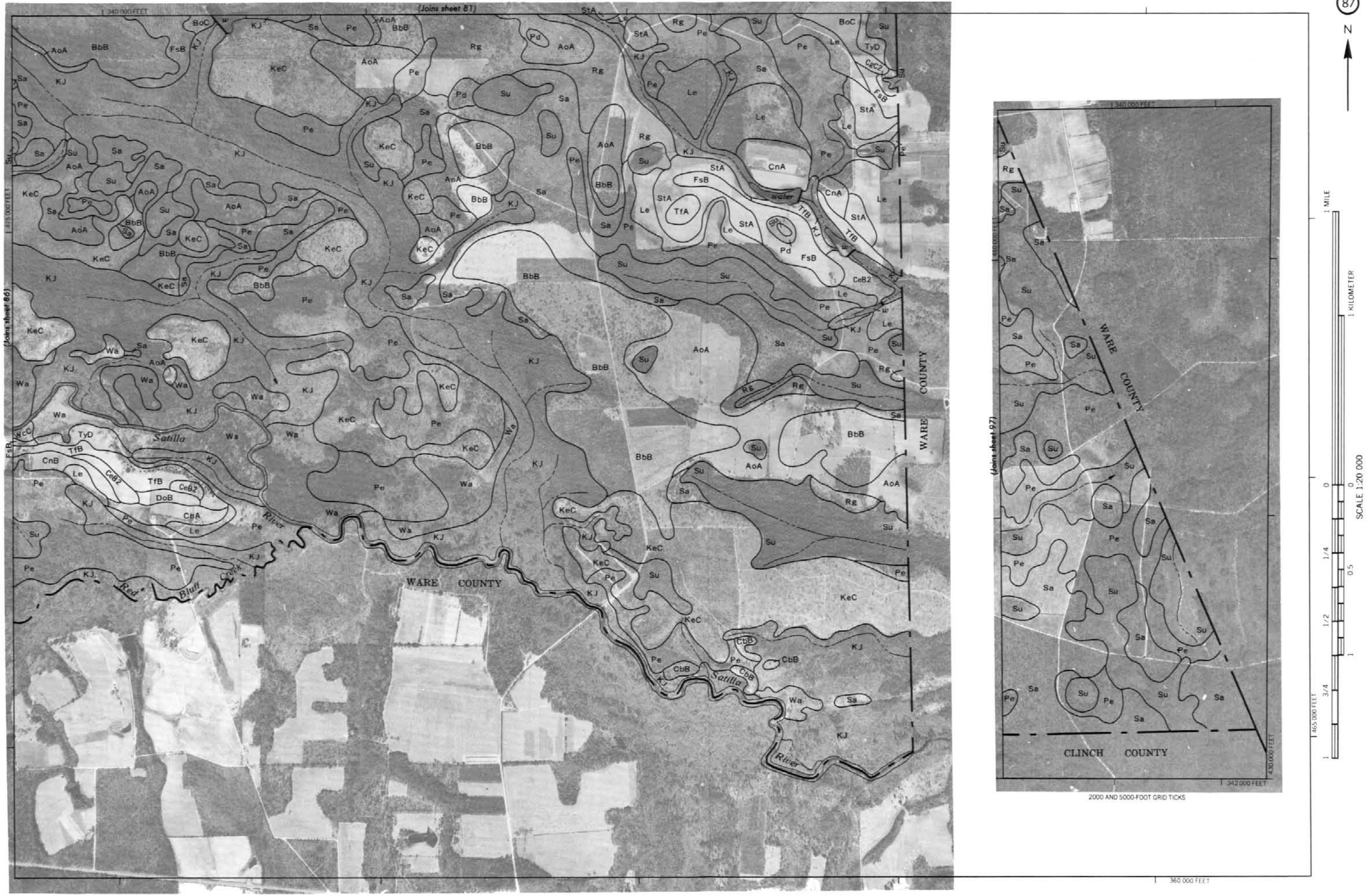

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
(Joins sheet 76)
(Joins sheet 83)
(Joins sheet 88)
240 000 FEET
220 000 FEET
465 000 FEET
BERRIEN COUNTY
ALAPAHA RIVER
CENTRAL OF GEORGIA
Long Bay
Camp Bay
Meeting House Bay
ALAPAHA WILDLIFE MANAGEMENT AREA
135
water
w
OB
Wa
KJ
CbB
BbB
Su
AoA
Sa
Pe
Le
Rg
Da
Pd
BoC
Ou
KnC


240 000 FEET
(Joins sheet 77)
(Joins sheet 82)
(Joins sheet 84)
(Joins sheet 89)
SEABOARD COASTLINE
82
50
ROUNDABOUT SWAMP
Camp Bay
ALAPAHA WILDLIFE MANAGEMENT AREA
Hog Creek Bay
Da
Su
Sa
Pe
Le
Rg
Ba
StA
AoA
BbB
CnA
FsB
Pd
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5

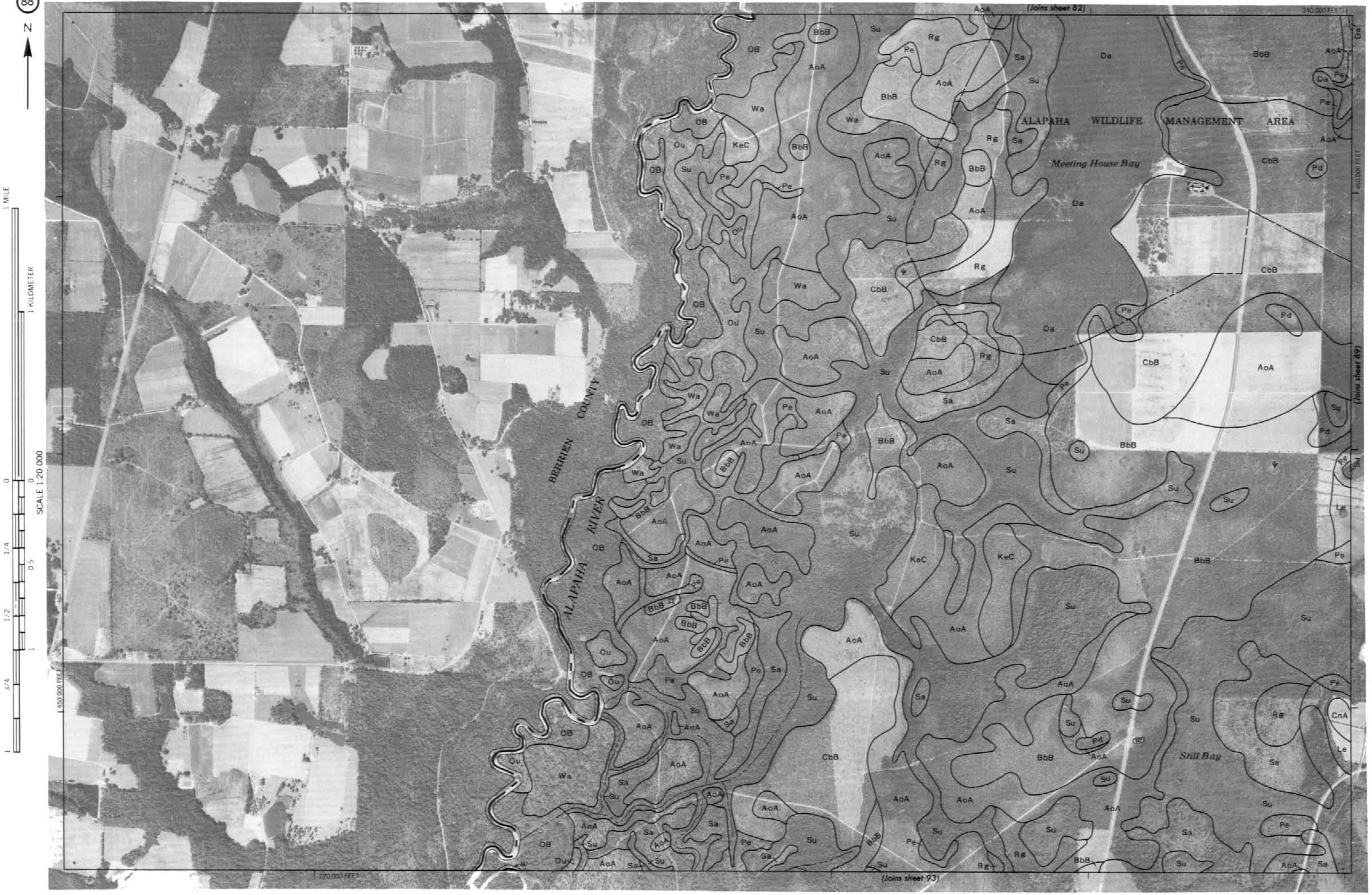

N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
0.5
1/2
1
3/4
1
(Joins sheet 78)
(Joins sheet 83)
(Joins sheet 85)
(Joins sheet 90)
Kirkland
Pearson
Kirkland Mill Pond
SEABOARD COAST LINE
AoA
Ba
CnA
CnB
Da
DoA
DoB
FsB
KJ
Le
Pd
Pe
Rg
Sa
StA
Su
TfA
TfB
w
82
50
31
64
221
441
265 000 FEET
460 000 FEET


(Joins sheet 79)
(Joins sheet 84)
(Joins sheet 86)
(Joins sheet 91)
Ricketson Bay
SEABOARD COAST LINE
290 000 FEET
310 000 FEET
485 000 FEET
465 000 FEET
water
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
82
50
64
Da
Su
Sa
Rg
Pe
Le
Pd
AoA
StA
CnA
CbB
BbB
DoA
DoB
KJ
FsB
CsB2
CeB2
CeC2
TfB
CnB

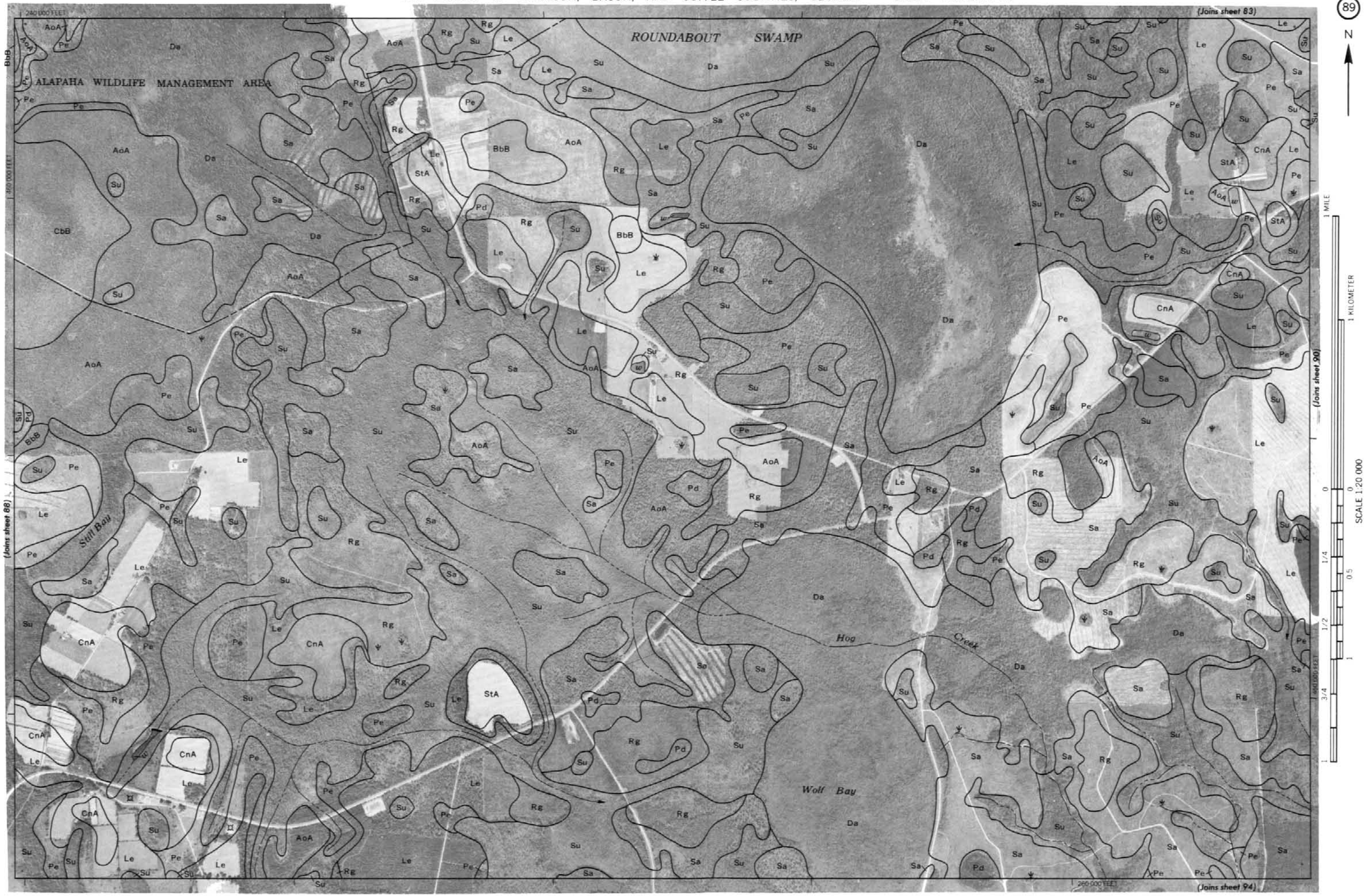

86
N
(Joins sheet 80)
(Joins sheet 87)
(Joins sheet 85)
(Joins sheet 92)
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
Satilla
River
Red
Bluff
Creek
WARE COUNTY
SEABOARD
COASTLINE
Axson
water
82
50
315 000 FEET
475 000 FEET
465 000 FEET
Le
Pe
Rg
Su
Sa
KJ
StA
TfB
FsB
BoC
CnA
CgC2
CeB2
AeC
AoA
BbB
KeC
Wa
WcC
WcB
DoB
CnB
Pd
TfA
TyD


87
N
(Joins sheet 81)
(Joins sheet 86)
(Joins sheet 97)
340 000 FEET
475 000 FEET
440 000 FEET
465 000 FEET
430 000 FEET
342 000 FEET
360 000 FEET
Satilla River
Red Bluff Creek
WARE COUNTY
CLINCH COUNTY
water
KJ
Pe
Sa
Su
KeC
AoA
BbB
Wa
Rg
Le
StA
TfA
TfB
FsB
CnA
CnB
CeB2
DoB
TyD
BoC
Pd
CbB
WcC
1 MILE
1 KILOMETER
0
1/4
1/2
3/4
1
0.5
SCALE 1:20 000
2000 AND 5000-FOOT GRID TICKS

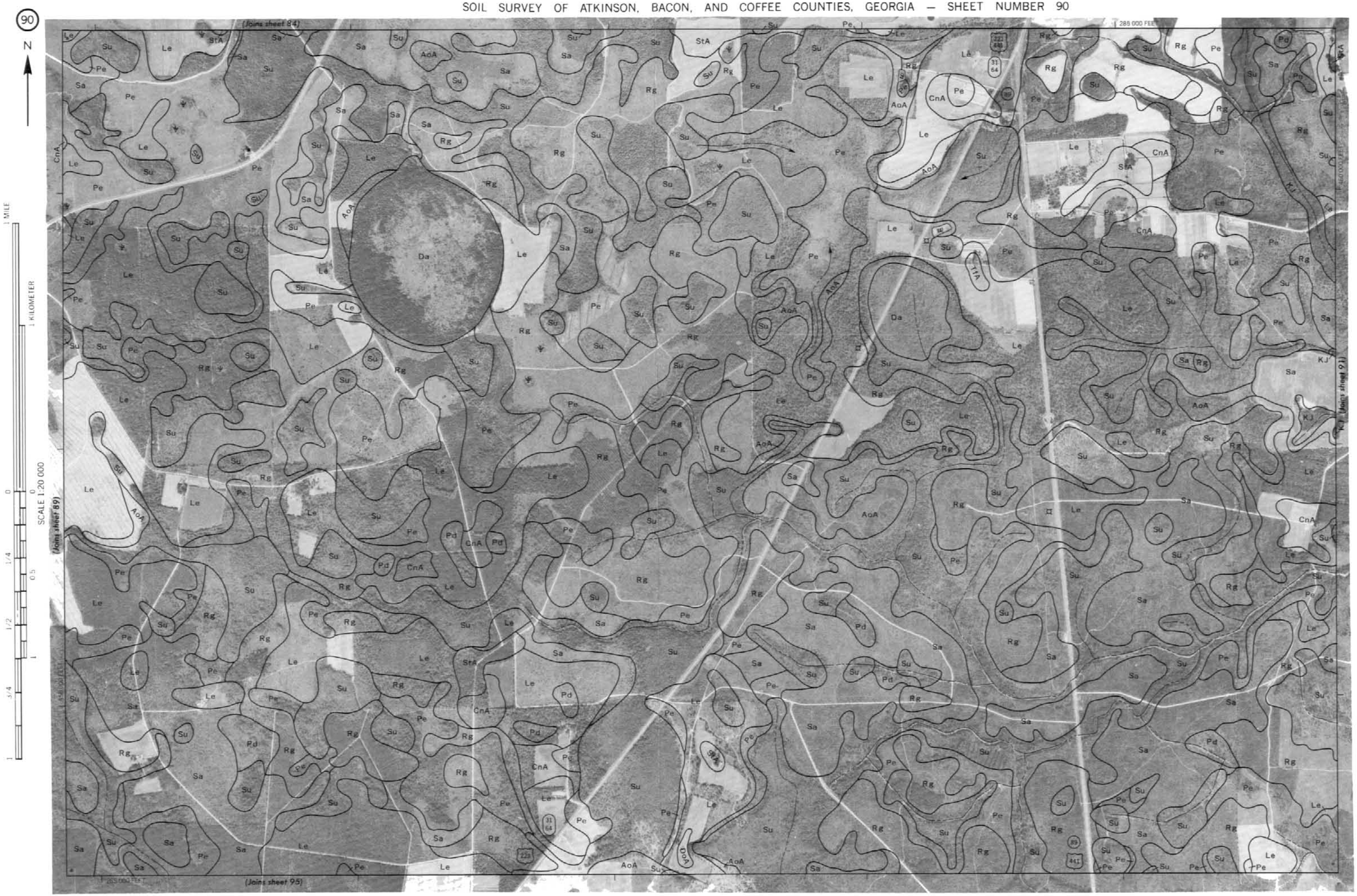
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 88

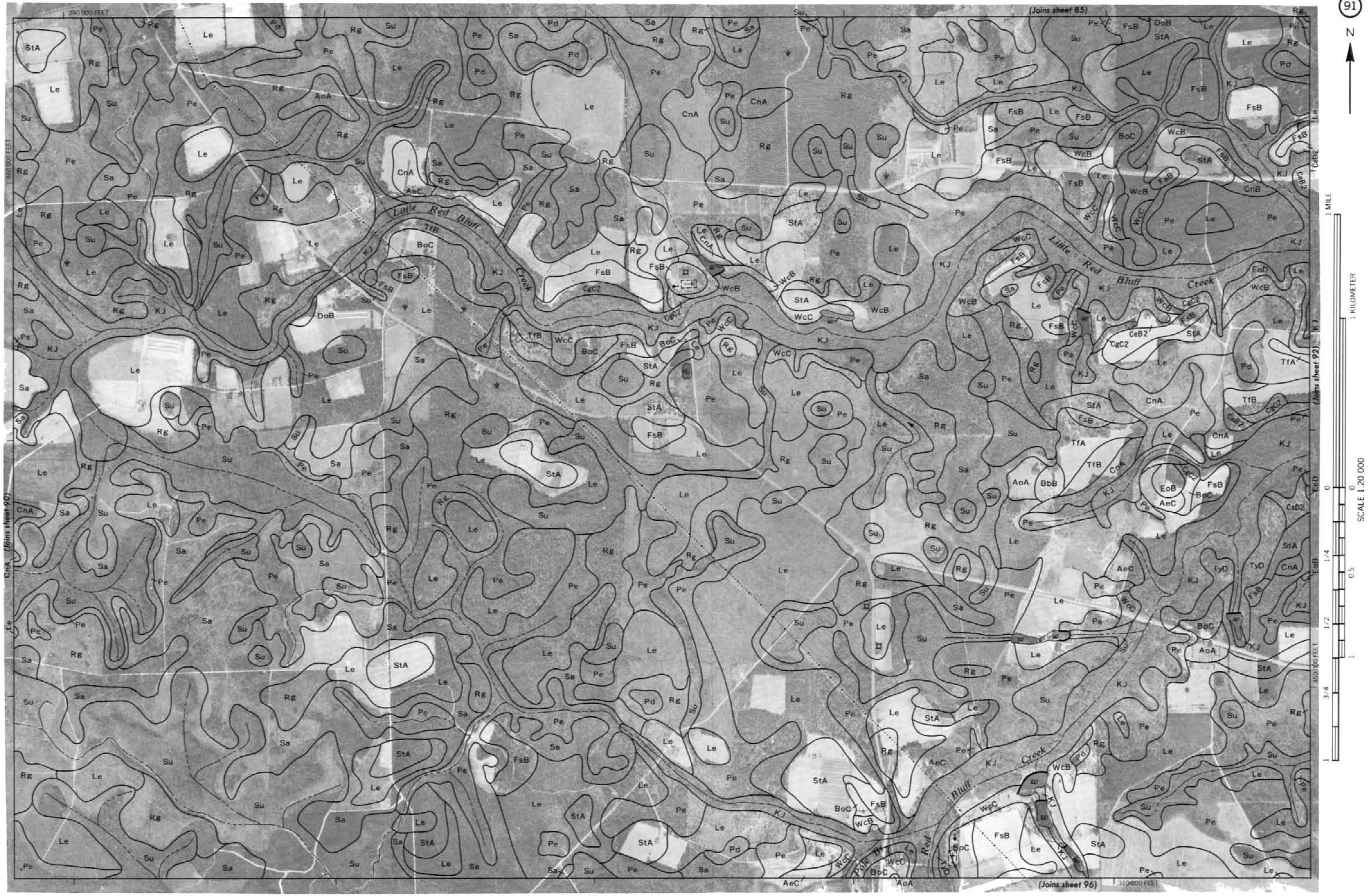


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 89



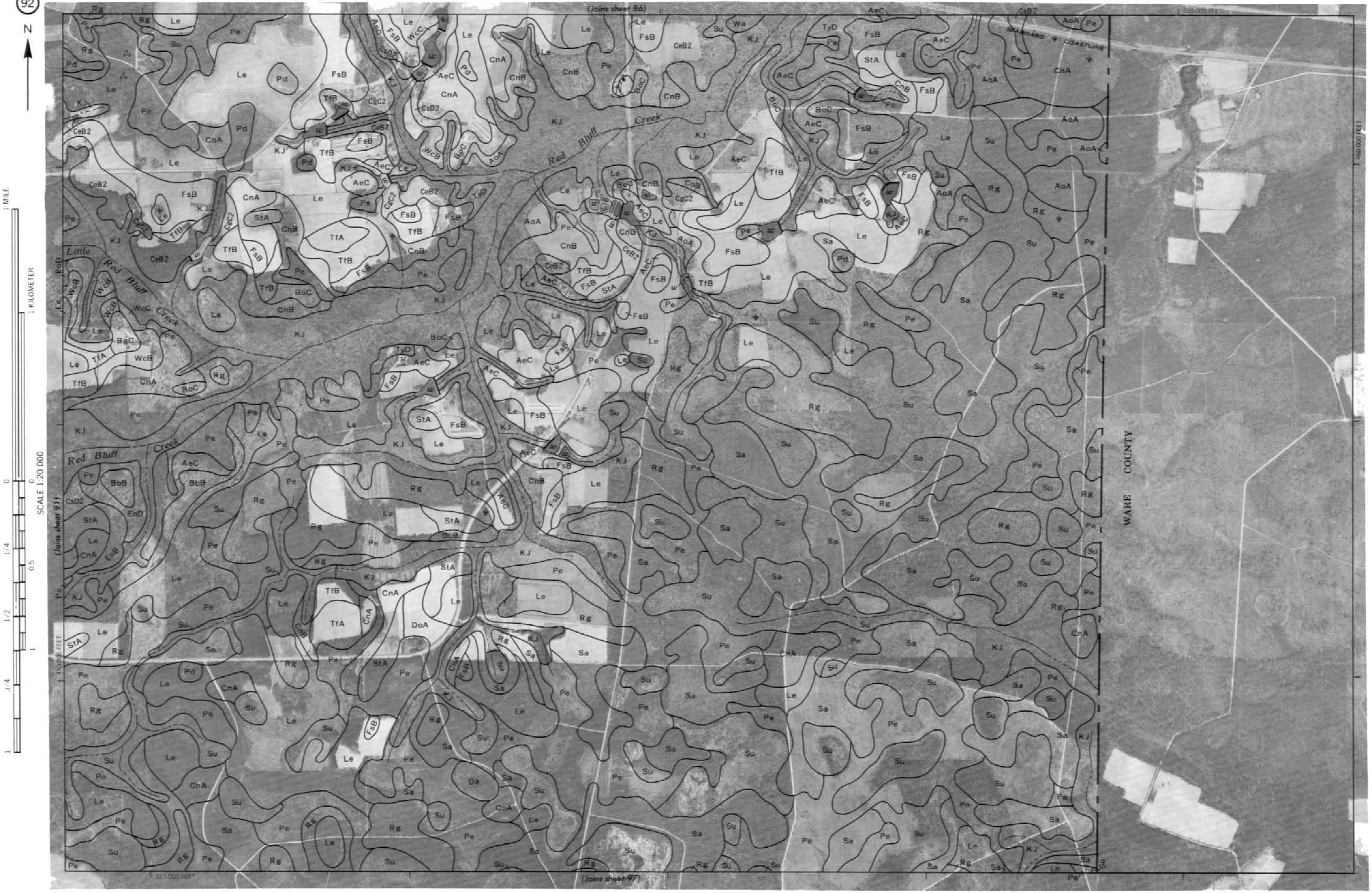
SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 90



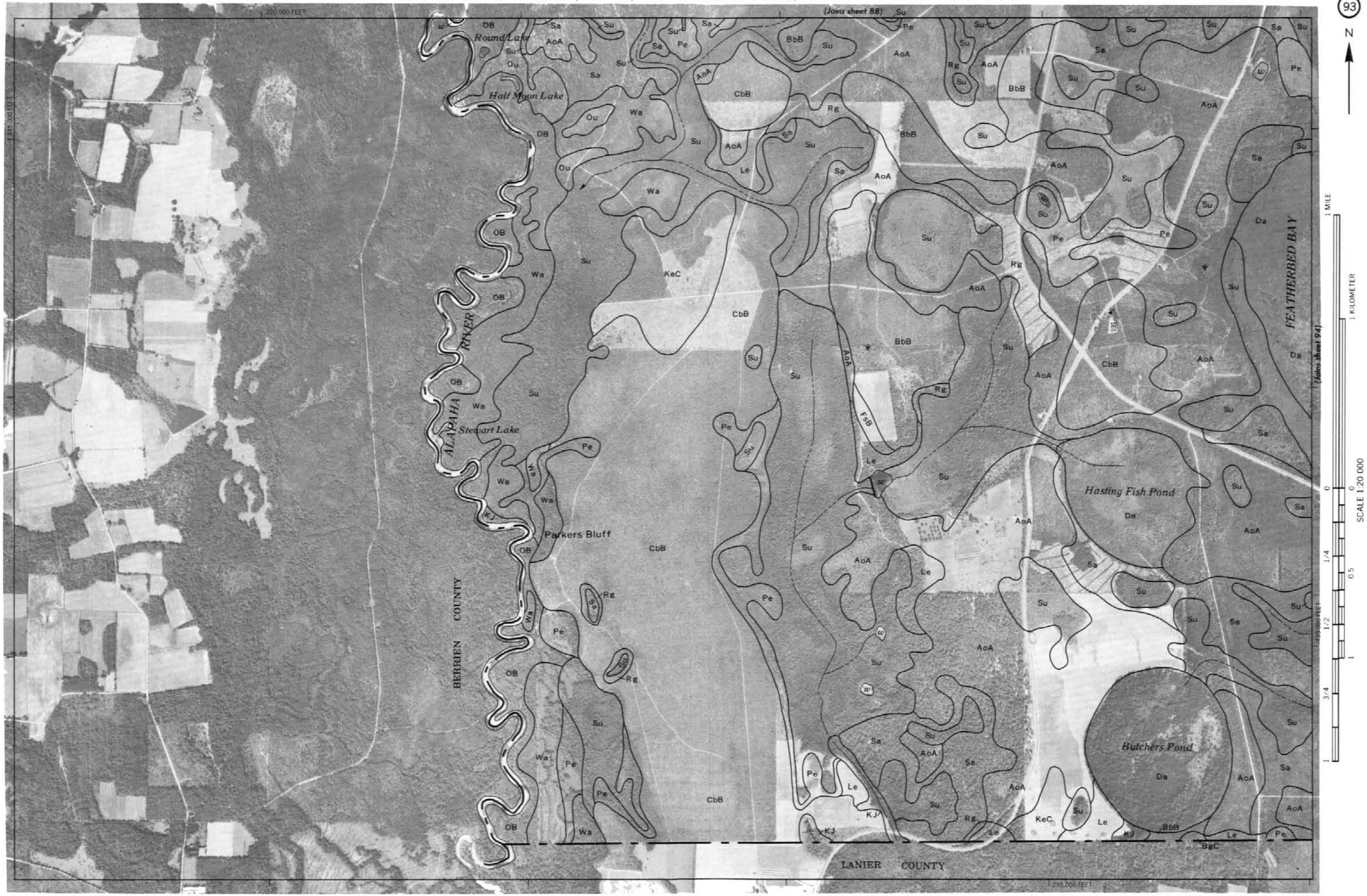

(Joins sheet 85)
(Joins sheet 92)
(Joins sheet 96)
(Joins sheet 90)
290 000 FEET
310 000 FEET
460 000 FEET
450 000 FEET
Little Red Bluff Creek
Red Bluff Creek
Pole Br.
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
StA
Le
Pe
Rg
Su
Sa
Pd
AoA
CnA
CnB
AeC
TfA
TfB
BoC
BbB
KJ
FsB
DoB
CgC2
CeB2
CsD2
WcB
WcC
EoB
EoD
TyD

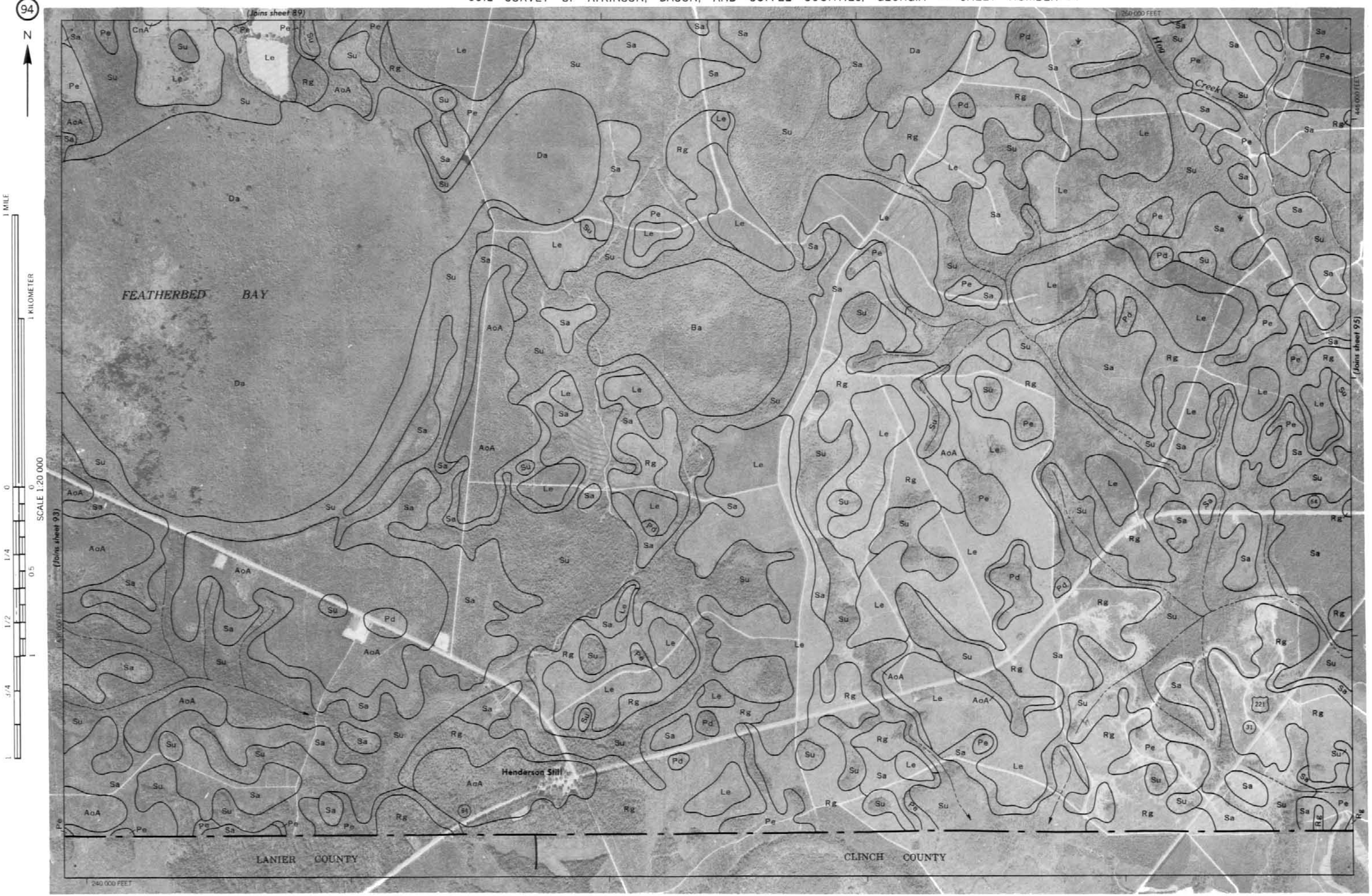
⑨②

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 92

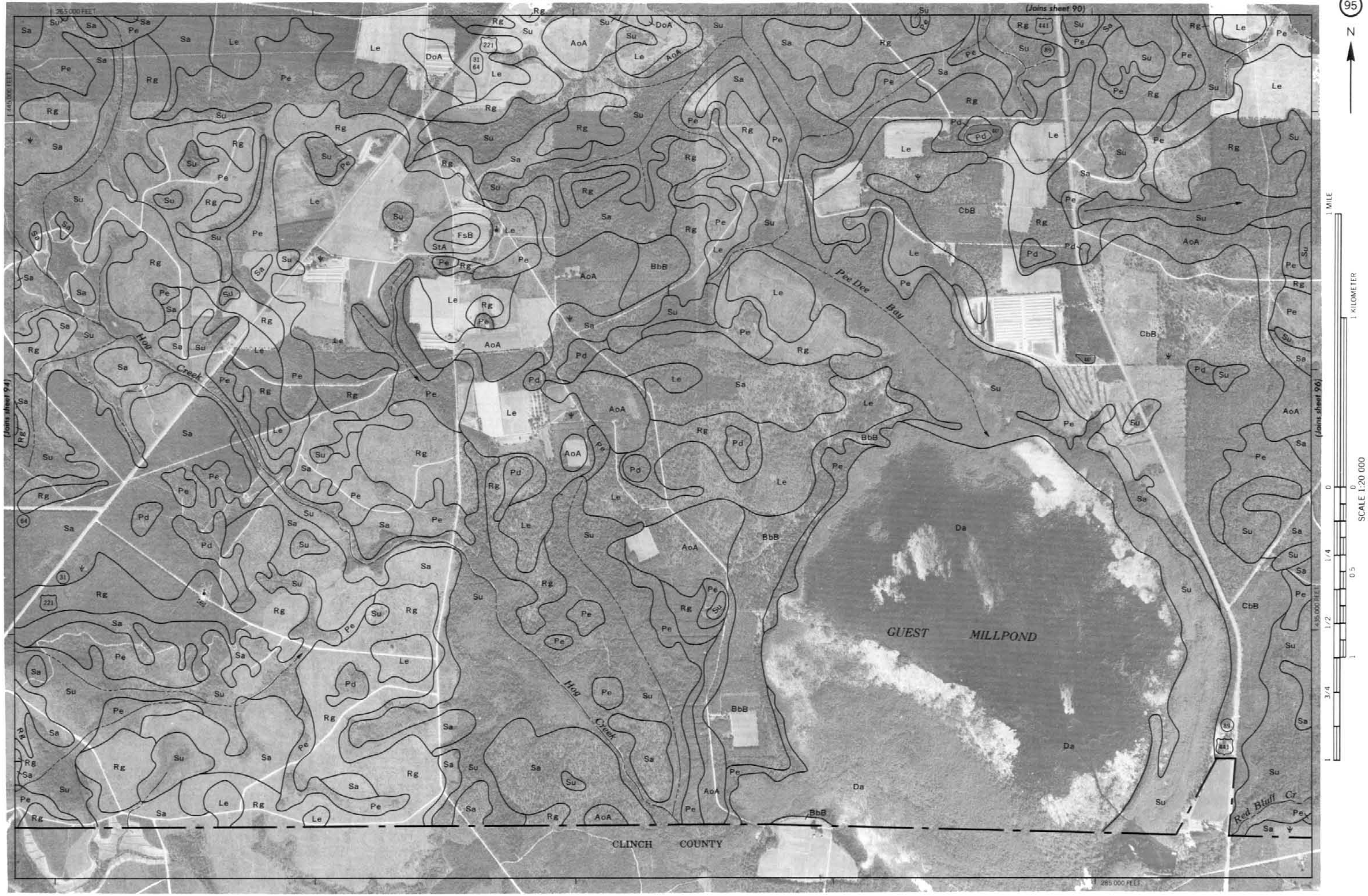


SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 93



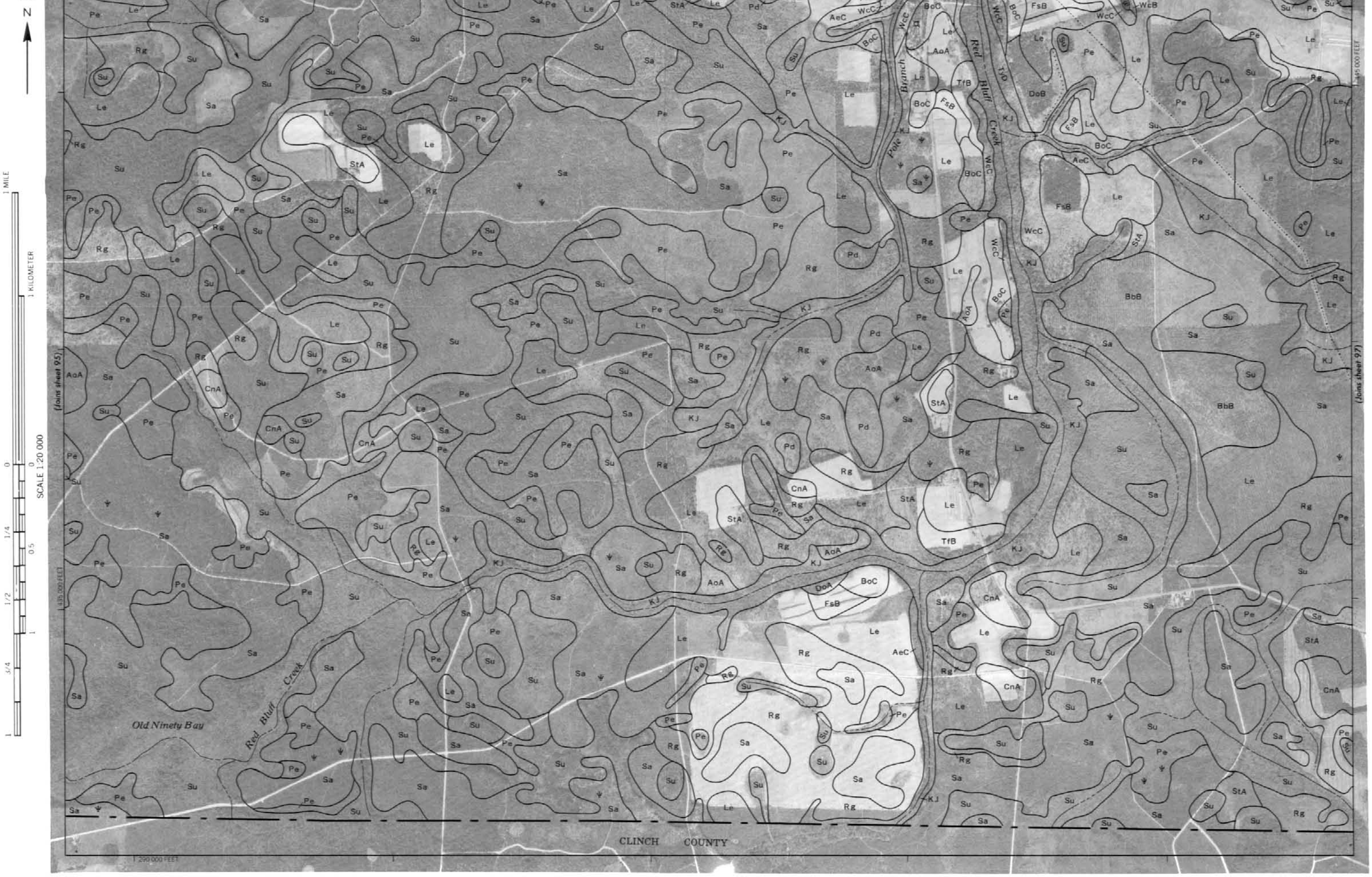

94
N
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
(Joins sheet 89)
(Joins sheet 93)
(Joins sheet 95)
240 000 FEET
440 000 FEET
FEATHERBED BAY
Hog Creek
Henderson Still
LANIER COUNTY
CLINCH COUNTY
221
31
64
Da
Ba
Su
Sa
Le
Rg
Pe
Pd
AoA
CnA

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 95



(96)

SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 96



SOIL SURVEY OF ATKINSON, BACON, AND COFFEE COUNTIES, GEORGIA — SHEET NUMBER 97